

The Dental Digest.

Vol. VII.

CHICAGO, FEBRUARY, 1901.

No. 2.

Original Contributions.

TYPAL CONTACT OF THE NATURAL TEETH.

By L. P. LEONARD, D.D.S., WASECA, MINN. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY AT LA CROSSE, JULY 17-19, 1900.

That we may better comprehend that which is typal in man, let us consider for a moment the teeth of a few of the lower animals. Take for instance the multiple-coned teeth of the carnivora, whose diet is that of flesh—not only are the cusps sharp and well defined, but the point of contact is also prominent and well defined, amounting in some instances to an almost rounded cone, with its corresponding rounded interproximate gum.

The reason why nature provides such contact and gum is, that in the mastication fibers of meat may glide lingually and buccally; while on the other hand, were the contact flat and broad and the interproximate gum flat and not rounded, the fibrous food would be forced between the teeth, where painful lodgment upon the interproximate gum would ensue.

This is not so with the herbivora, whose requirements and process of mastication, and consequently the contact of the teeth, are the antithesis of the carnivora. The food of the herbivora is grass, hay and grain, which is best masticated by a torsion or lateral grinding motion. For such a diet it is necessary to have a broad flat contact, with practically no embrasures, which gives the broad, unbroken surface so suitable for triturating a bolus of herbs.

If we examine the teeth of the bear, whose diet is more nearly like that of primitive man, viz., flesh, fish, grain, berries, etc., we find that the contact point is also nearly like that of man, which is likened unto that of two marbles. This marble-like contact of the teeth of both bear and man should receive careful consideration, for it shows how nature adapts herself to certain consumptions, whether by man or the lower animals, and we should certainly be as considerate as nature, both in the shaping of our fillings and also in the selection of our food.

Returning to the contact of the teeth of man we may ask (pointing to models)—Is the contact point between the superior and inferior grinding teeth alike? Is the contact point in the center linguo-buccally? Are the lingual and buccal embrasures the same size?

Our literature upon the interproximate space and contact point is not voluminous. Perhaps the most comprehensive article in this connection is that of Dr. Black's, entitled "Recent Developments in Filling Teeth," 1897. In this article he says, "In the well-formed dental arch this contact of the teeth, the one with the other, is similar to the contact of two marbles when brought together. So long as they have not been flattened by wear, the points of contact are very small and easily slide more or less upon each other with the motion of the teeth in their sockets. Immediately to the gingival of this contact the surfaces of the teeth begin to stand apart, and the space increases until the alveolar process is reached, forming a V-shaped space between the tooth-surfaces, which in normal conditions is filled with soft gum tissues. The angle of these V-shapes varies indefinitely. This is the interproximate space. This also rounds out broadly toward both the buccal and the lingual. These I shall call the buccal and lingual embrasures of the interproximate space."

As to contact point this is probably the best statement that has ever been given to the dental profession, but more differentiation and precision is necessary. Hence the following axioms and rules are repeated: *Axioms.* If a superior molar be ground considerably upon its mesial and distal and lingual and buccal surfaces it becomes a trapezoid. (Fig. 1) If lines be drawn mesio-distally from A to A, and linguo-buccally from B to B, the figure will then be composed of four angles, two of which are acute, C C, and two obtuse D D. Fig. 1) If an inferior molar be ground considerably upon its mesial and distal and lingual and buccal surfaces, it presents in appearance a parallelogram. (Fig. 3) If lines be drawn mesio-distally from E to E and linguo-buccally from F to F, the figure will then be composed of four angles 1-2-3-4 (Fig. 3), all of which are equal and right angles.

Proximal contact of teeth is similar to contact of two marbles (Black). Marbles differ in diameter, consequently differ in the area of their circumference and in contact; so do teeth. When two marbles are brought in contact vision is obscured from a greater sur-

face than that which is in actual juxtaposition; the former we shall term the apparent, and the latter the real point of contact, both of which differ to extent according to the size of the marbles. Looking at teeth from an occlusal view they appear oval, but not spherical.

Rules. Rule 1. The area of the circle described by the point of contact between superior molars is one-half the size of that which is between inferior molars. In Fig. 2, which represents the normal contact between two superior molars, the diameter of this circle is 16 in.

Rule 2. The area of the circle described by the point of contact between inferior molars is twice the size of that described

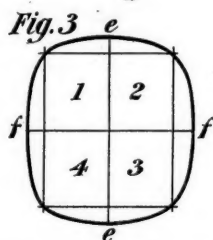
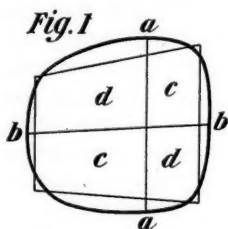


Fig. 2.

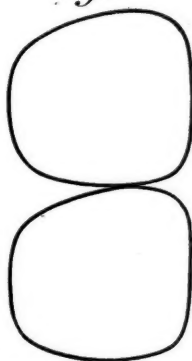
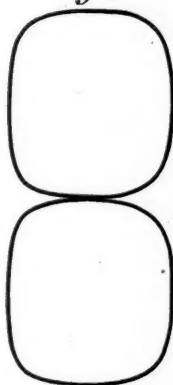


Fig. 4.



between superior molars. In Fig. 4, which represents the normal contact between two inferior molars, the diameter of this circle is 32 in.

Rule 3. Between superior bicuspid and between superior molars the lingual embrasures are twice the size of the buccal ones.

Rule 4. Between inferior bicuspid and between inferior molars the embrasures are equal.

Rule 5. The point of contact between superior bicuspid and between superior molars is at lingual $\frac{2}{3}$, or buccal $\frac{1}{3}$, linguo-buccally.

Rule 6. The point of contact between inferior bicuspid and inferior molars is at the center linguo-buccally.

Rule 7. Viewing the teeth in contact with each other from an occlusal aspect, the excluded vision should not exceed—Between superior bicuspid 8-10 mill.; between superior molars 1 mill.; between inferior bicuspid 8-10 mill.; between inferior molars $1\frac{1}{2}$ mill.

It is the excluded vision or apparent contact and not the real one that the dentist while operating has to measure with his eye, hence the advantage of being familiar with the above rules that we may have measured in our mind the contour and contact point before the filling is inserted.

Discussion. *Dr. B. G. Maercklein:* Dr. Marshall H. Webb was the first and the most enthusiastic advocate of this interproximal space, and of so shaping the cavities that the lines of marginal contact of the fillings with the teeth were out and free to what we call the "brush line." He was also the most prominent opponent of Dr. Arthur's method of separating teeth, which though it met with much favor at the start, was most disastrous in its aftereffects.

Dr. W. E. Harper: I don't know exactly how our essayist has made his mistake in the outlines, but certainly in the upper first and second molars the mesio-buccal and disto-lingual angles are always acute. In the lower molars, practically without exception, you have a tooth with five cusps. The distal, which makes the third buccal cusp, gives the buccal surface a much greater diameter than the lingual, making the tooth trapezoidal in form. In the lower second molar you have four cusps of practically equal size. Now I will locate this contact point between the lower first and second molars, instead of at the center, bucco-lingually, at the juncture of the buccal two-fifths with the lingual three-fifths. In the upper molars that contact is at the juncture of the buccal third and the lingual two-thirds. There is a difference in the relationship, the contact point in the upper being much nearer the buccal surface than in the lower molars. It is highly important that we understand this fact, so as to restore the contact point and to so locate it that it will serve its purpose best.

The essayist dwelt upon the necessity of the bucco-lingual contact, but said very little about the failure to separate the teeth before filling them, so as to restore the occluso-cervical or gingival contact. Often one or both of the proximal surfaces have decayed, and the teeth have crowded together, bringing the gingival or cervical margins into partial contact. No matter what form you give the bucco-

lingual margin, if you neglect to restore that space or to separate the necks of those two teeth, you absolutely fail in your duty. You can not restore the tissues of the interproximal space without that separation. Do not leave those inviting gaps into which food is wedged. The nearer it approaches the gingival the tighter it gets, and being pressed down a little more each time by mastication, it finally reaches the free margin of the gum, where it creates inflammation, recession and absorption, eventually forming a pocket and starting caries which involves the root. When Dr. Black mentioned the marble-like contact he meant occluso-gingivally as well as bucco-lingually. I make narrower contacts than nature does, because I can not run the same risk that she can. Separation is best done slowly with gutta-percha, leaving it high, so that the pressure of mastication will force the teeth apart. A little packed against the free margin of the gum will force it out of the way and leave a clear surface to work upon.

Dr. Leonard: I emphatically stated that these angles, C C, are acute, and D D obtuse. The chart is hanging sidewise and gives a wrong impression. I did not speak concerning the periphery of the shape of these teeth, but only about how they appear when ground and what angles are formed. Fig. 2 is not an exact reproduction, and I intended to simply throw out the suggestion that there are cases where it is permissible to grind the enamel. I certainly should differ with Dr. Harper as to the position of the point of contact between inferior molars, as I claim that it is in any other place than in the center linguo-buccally.

ARTIFICIAL DENTURES; FULL SETS; SHOULD THEY FIT?

BY E. J. PERRY, D.D.S., CHICAGO. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT LA CROSSE, JULY 17-19, 1900.

The above may seem like a queer inquiry in view of the almost universal opinion that they should fit. In fact, we frequently hear men boast of occasional sets, saying they fit like a glove, could hardly pull them out they fit so tight, suction was perfect, and so forth. Many go to extremes to secure a perfect fit; will not use varnish on the impression lest the interposition of this thin film may change the fit. Some will not use even the lightest foil for the same reason. Theoretically they do not fit, any of them; and practically,

if the fit was theoretically perfect they would not work at all. Theoretically a fit is impossible, and practically it is not desired. Fit is not the word at all. Adaptation should be substituted. There can be no such thing as a tight fit or a loose fit; it is a fit or it is not a fit: a tight fit or a loose fit is no fit at all. Of course it should approximate a fit, but in my judgment the whole secret is in adapting the plate to the tissues, so as to secure uniform pressure when capillary attraction or adhesion results.

How can this be done? Manifestly by studying the physical conditions of the alveolar ridges and arches in each case. An examination of the bony ridge and arch of the toothless skull will show an irregular surface, which in life is covered by soft tissues, periosteum, mucous membrane, etc., and highly vascular. These constitute a cushion which varies widely in thickness and density. At the juncture of the two maxillary bones a hard, fibrous, and almost bony ridge is characteristic, while at either side, running back to or beyond the tuberosity, a soft or yielding zone is usually found. Upon the summit of the tuberosity the cushion frequently varies from that on the ridge in front in thickness and sponginess. These very characteristics have to be dealt with in adapting a plate, and a special map or diagram should be made in each case and filed away for reference in the absence of the patient. One can educate his fingers in a short time so that the relative thickness and density of the cushion can be noted with enough accuracy for practical results.

It is the adjustment of the plate with special reference to these conditions that we desire, so that when pressure is made upon the teeth, as in mastication, the tendency is to set the plate more firmly in position, rather than unseat it, which is always the result if the plate rides upon the hard places and ridges, which it will surely do if you have the so-called fit. How often has your patient said, "Yes, the plate seems to fit, but when I bite it instantly falls down." Then if you will apply pressure to the molar surface on each side you will be able to rock the plate upon the median line, and will notice an escape of air at either side, where, as above noted, the cushion is thick and springy. You say the plate leaks. If the arch and ridge covered by the plate were absolutely uniform in density and thickness, assuming that you have the so-called fit, the pressure upon the molar or bicuspid surface would then tend to make the plate more firm in position. But as such is not the case, the

plate first rests hard upon the hard places, the soft places yield, the plate falls from position. The fit, then, has nothing to do with it, or, stated differently, it falls because it does fit, or still again, because it doesn't fit differently. The whole difficulty, aside from any idiosyncrasy of the patient, comes from a lack of study along the line of special adjustment of the plate, as before stated.

The old idea of an "air-chamber" was in the last analysis only a relief, and often the larger the better. When too great, the depth simply induced hypertrophy or fungus growth. No vacuum ever resulted, and if it could have resulted it would have been of short and painful duration. Great care used to be taken with the margins of these air-chambers, so as to prevent leakage of air in or out. The Cleveland air-chamber in middle plates is an example in point. The air-chamber when shallow and extended the length of the hard ridge was a very fair relief, and a partial adjustment of the plate. When it did this it did all it ever could do. Then came a flexible soft rubber disk, fastened to the plate by a brutal rivet in its center, operating on the principle of a duck's foot—the soft edges clinging, while the rivet pulling from the center produced a partial vacuum. Then the flexible edges were another sucking device. All failed signally. Conditions, the vascularity of the tissues carrying the nutrient vessels of the bone, the distinctively peculiar environments of the mucous surfaces of the mouth under normal conditions, positively contraindicate any suction device for the retention of a dental plate, especially when the plate is made of a non-conductor of thermal changes, and this is true both theoretically and practically.

I take the impression in plaster, using warm soft water with a pinch of salt; selecting a tray approximately the size of the ridge, so that a minimum of plaster may be used. The ridge should not cut through the plaster to the tray, the plaster should not be too thick, and the mix should be smooth and free from lumps, so that in carrying to place it will not push nor displace the tissues. When in place, the patient should swallow, and with the free hand you must press gently the lips and cheeks, so that you get a true copy of the frenum and muscles attached to the ridge. A perfect model of the mouth is desirable. Varnish first with thin, clean shellac; when dry, then use sandarac. Mix the plaster for the model with great care, beat it well, not too thin, but quite thick. Place a portion on the top of the impression and gently coax or jolt it to posi-

tion, thus avoiding bubbles and securing a model of even density, and if the impression has been varnished properly a smooth glassy surface results. Now mark the plate line at the heel, and after reference to the chart previously made, deepen the model on either side of the median line. This is the only place where I change the model by trimming, and the only treatment I give the model until after the case has been flaked and separated. After the rubber has been packed carefully, place over face of model a bit of thin cheesecloth, preferably the layers of cloth which come between the sheets of pink rubber; this has a paste on it which when placed against the rubber draws away easily. Close the flask with a press in boiling water slowly, so as to give the rubber time to run, and close clear down. Now separate; take out cloth, and if any of the surplus has been forced into the vent, and you feel sure by other indications that you have sufficient rubber, take chart, and where relief is desired use No. 20, 40 or 60 tin foil on the median line at the juncture of the two halves of the maxillary bones. I use 40 or 60, or on the tuberosity perhaps 20. Cut pieces and press to place, then burnish them closely to the model. Next paint these surfaces with library paste or mucilage, and press these pieces of tin foil to place. Now paint the whole model with the paste, and carefully burnish No. 10 tin foil on the whole, close flask, and do not open again until after vulcanizing. This produces a beautiful surface, and I believe a stronger rubber. Of the adaptation I know. I use the same principle in swaging gold or platinum plates, simply by cutting out pieces of 60 tin foil where I wish to relieve the hard areas. Of course if the model is not deepened the relief by adding tin foil makes a desirable difference, as this alone will drop the plate into the softer areas so much the harder, but I find it insufficient, though I deepen the model where the mouth is soft. I use no air-chamber, so-called, whatever; my whole study is simply to equalize the pressure of the denture, with special reference to the density and thickness of the membranous cushion which covers an irregular surface of bone called the alveolar ridges and arch.

Discussion. *Dr. T. E. Weeks:* I was once in Dr. Perry's office when a patient, a man, had considerable difficulty in removing, even with both hands, a full upper denture which Dr. Perry had made for him. The mouth was not a favorable one, yet the adaptation of plate was almost perfect.

Dr. W. H. Cudworth: Dr. Perry, do you always follow out the method laid down? For instance, if the plaster is particularly soft at the posterior portion of the mouth, do you use anything on the heel of impression tray? I have had good success from laying a roll of wax on the heel of tray, crowding it up as closely as possible and then filling the tray with plaster.

Dr. Perry: If the tray is the proper size I do not, and if I use anything on the heel it is simply to keep the plaster from going down the throat, where the tray does not fit perfectly. Your method will give a place that does not fit quite so well, but is nicely adapted to the features.

The question is asked, what objection I have to paring the impression in the hard places. I can not pare the impression or trim it uniformly as I can by adding to the model. If, however, anyone could do it so perfectly as the latter operation, the same purpose would be accomplished, but I am fearful of destroying to a certain extent the ridges in attempting to work on the impression.

Dr. C. L. Babcock: I think the essayist's principle is correct, but I would ask if he has any plan, other than his judgment and an educated finger, of determining the extent of the hard and soft portions of the mouth. The principle is correct, but in actual experience it is somewhat a matter of chance.

Dr. E. C. French: If there is any branch to-day in which we are lame it is prosthetic dentistry, and the profession is itself to blame for the condition, as dentists will not as a rule qualify themselves to do prosthetic work, simply because there is no money in it. No operation calls for more skill than that of making a good artificial denture, but as a large percentage of our dentists don't know the difference between a good and a bad plate, so long as it has teeth on it, and as too many dentists are satisfied when they have set up something which looks like a set of teeth, platemaking has fallen into disrepute. Often we make a good plate and adapt it to the tissues of the mouth satisfactorily, but the patient can't wear it at all, because of poor articulation or occlusion, and I believe the majority of failures come from this cause. There is only one method of occluding teeth—Bonwill's, and only by following his ideas do we obtain satisfactory results. So long as the unqualified operators won't learn, and so long as the men qualified to do prosthetic work turn it over to laboratories, which usually make the plate as cheaply as possible,

we can not expect the public to regard very highly this branch of our service. Let the honest, conscientious practitioners say, "We will make teeth as they should be made, if we make only one set a year," and the public will soon be educated up to the right standard.

Dr. Perry: When Bonwill published his treatise on the "Equilateral Triangle of the Lower Jaw," I could not understand it, but I have since learned the most important part of what I know about prosthetic work from one of his students. When a patient comes to you with nearly all the teeth gone, have you no feeling of pity in your professional heart, and is not such patient entitled to your most earnest consideration and best service? The dental profession should blush for shame that platemaking is in such disrepute to-day, and the public are most assuredly not to blame. When you give your patients art they are willing to pay for art work, but when you insert a poor plate you are acting dishonestly if you charge any more than do the dental parlors. The operator who can bring back the lost expression and compensate to some extent for the missing teeth is an artist, and he will have little difficulty in inducing his patients to pay the proper price for such sort of work. Unfortunately, however, most operators can not produce artistic results. The same principle applies to continuous gum work, and while most of you will probably say that your patients regard it as too expensive, I maintain that if you firmly believe such a set is the best thing for the case in hand, you can induce your patients to pay for it; furthermore, they will think better of you afterwards. Finally, do not ignore utterly the wishes and judgment of your patients. I never made a set of teeth which suited me in every respect without having the patient express complete satisfaction, and when complaints come, it is from cases where we are not just satisfied ourselves.

THERMAL CONDITIONS AS RELATED TO POROSITY AND ABSORPTION OF OXYPHOSPHATE CEMENTS.

BY E. J. EISEN, D.D.S., MILWAUKEE. READ BEFORE WISCONSIN STATE DENTAL SOCIETY, AT LA CROSSE, JULY 17-19, 1900.

In accepting a chemical mixture or compound as a filling material our object is to provide a temporary, or in some instances a permanent stoppage against oral conditions, such as moisture, micro-organisms, etc. Oxyphosphate cements in general do not seem to

possess this requisite and we may hope that this objection at least will be remedied so as to make them of more value in preventing an immediate recurrence of decay. The inherent defects of cements seem to be porosity and expansion or contraction, either of these conditions being of sufficient importance to disqualify cement as a preventive of decay. In dealing with porosity alone, it will be my endeavor to show to what extent this condition exists in a mix of cement, and a cause for the production of the same.

The mixing of a cement is of paramount importance, but the entire blame for a poor specimen must not be laid to the manipulator alone, although one must acknowledge that carelessness in this respect is one of the prime causes of failure. Thorough mixing and the taking up of a sufficiency of the powder is essential for good results, but going to the other extreme, i. e., incorporating the powder by mere mechanical means, appears unwise, for the density of a cement depends wholly upon an exact chemical union.

It has been claimed that the fluid of one make of cement with the powder of another will sometimes produce satisfactory results, but the experiments in this line were not gratifying enough to warrant a rehearsal of their condition. Suffice it to say, that their physical appearance as perceived by the naked eye was so at variance with the desired result as to discourage any thought of producing a satisfactory compound.

Over forty specimens were tested, including Ames, Justi, de Sanno & Hussey, Wilcox, Britton, Weston and Harvard. The course followed in testing was this—Specimens after being mixed were given a sufficient time to set, then weighed, after this their immersion in distilled water at a temperature of 70° F. followed. Having been kept at this temperature for twenty-four hours, they were weighed, again immersed and temperature raised to 86° F. This course was continued through the following temperatures: 95°, 104°, 113°, 130°, 140° F. At 140° temperature and submersion were discontinued, the specimens removed and retained in a corked bottle. After five days they were again weighed and allowed to remain in the open for eight hours, after which they were weighed again. I am prepared to give the results of twenty-seven specimens, and in order to be as expeditious as possible I will class them as a body, giving the decrease or increase in weight in percentage, thereby preventing the confusion of individual mixes.

No. Cement	Weight Original	May 3 21.11°C 70°F	May 11 30.0°C 86°F	May 13 35.0°C 95°F	May 13 40.0°C 104°F	May 14 45.0°C 113°F	May 15 55.0°C 130°F	May 16 60.0°C 140°F	May 21 A. M.	May 21 P. M.	Loss or Gain from Original Weight.	June 8.
1 Ames	0.2580	0.2640+02	0.2655+005	0.2655	0.2655	0.2670+002	0.2670+001	0.2655-005	0.2655-02	0.2645	-01	0.2535
2 "	0.2580	0.2630	0.2655+005	0.2630	0.2640+004	0.2640	0.2640	0.2655-002	0.2655-002	0.2615	-006	0.2195
3 "	0.1960	0.1990	0.1975-007	0.1975	0.1985+005	0.1985	0.1990+002	0.1990	0.1990	0.1965	-002	0.1960
4 "	0.2435	0.2410-01	0.2455	0.2455	0.2465+01	0.2465	0.2460	0.2385-03	0.2385-03	0.2360	-03	0.2340
5 "	0.2070	0.2070	0.2050-009	0.2050	0.2060+004	0.2065+002	0.2065	0.2065	0.2065	0.2060	-004	0.2035
6 "	0.1950	0.1900-02	0.1900	0.1900	0.1900	0.1900	0.1900	0.1900	0.1900	0.1900	-02	0.1880
7 "	0.2400	0.2405+002	0.2415+004	0.2415	0.2420+002	0.2420	0.2420	0.2395-01	0.2395-01	0.2380	-008	0.2355
8 "	0.2310	0.2305+08	0.2295+08	0.2295	0.2300+002	0.2300+002	0.2305+002	0.2305	0.2305-02	0.2290	+004	0.2200
9 "	0.2715	0.2730+02	0.2705+001	0.2705	0.2800+001	0.2800	0.2800	0.2810+003	0.2785-008	0.2775	+02	0.2725
10 De Sanno	0.2160	0.2155-002	0.2300+02	0.2300	0.2310+004	0.2310	0.2300+009	0.2290	0.2180-04	0.2295	-03	0.2115
Hussey												
11 "	0.2440	0.2400-01	0.2465+02	0.2465	0.2470+002	0.2475+002	0.2485+002	0.2475-004	0.2390-04	0.2355	-03	0.2340
12 "	0.2610	0.2700+03	0.2670-01	0.2670	0.2710+003	0.2710+003	0.2725+005	0.2730+001	0.2610-04	0.2600	-003	0.2595
13 "	0.2510	0.2525+005	0.2565+01	0.2565	0.2570+001	0.2560+003	0.2565+001	0.2590+001	0.2500-08	0.2490	-004	0.2465
14 "	0.2210	0.2225+006	0.2255+01	0.2260	0.2270+008	0.2270	0.2275+001	0.2285+004	0.2200-03	0.2200	-004	0.2185
15 "	0.2355	0.2380+01	0.2410+01	0.2410	0.2410	0.2410	0.2415+001	0.2390+002	0.2340-03	0.2380	-01	0.2315
16 "	0.2325	0.2325+01	0.2405+08	0.2405	0.2405	0.2405	0.2420+005	0.2430+004	0.2310-04	0.2300	-01	0.2300
17 Justl	0.2555	0.2510+02	0.2465+02	0.2465	0.2670+001	0.2670	0.2670	0.2670	0.2590-02	0.2700	-001	0.2555
18 "	0.2620	0.2685+02	0.2715+01	0.2715	0.2730+005	0.2735+001	0.2735	0.2735	0.2655-02	0.2680	+004	0.2680
19 Brittons	0.2510	0.2510	0.2660+06	0.2610-01	0.2655+01	0.2660+001	0.2665+001	0.2670-001	0.2480-07	0.2470	-01	0.2460
20 "	0.2560	0.2600+01	0.2710+04	0.2700-003	0.2710+003	0.2715+001	0.2715	0.2710-001	0.2665-05	0.2660	-003	0.2655
21 "	0.2694	0.2695+01	0.2775+02	0.2775	0.2790+005	0.2790	0.2800+008	0.2800	0.2600-04	0.2655	+003	0.2640
22 Harvard	0.2615	0.2660+001	0.2635+005	0.2635	0.2650+005	0.2655+001	0.2660+001	0.2660	0.2640-007	0.2680	+005	0.2610
23 "	0.2615	0.2620+001	0.2620	0.2620	0.2635+005	0.2640+001	0.2640	0.2640	0.2685-001	0.2685	+007	0.2600
24 "	0.2615	0.2615	0.2615	0.2615	0.2630+003	0.2630+001	0.2630	0.2630	0.2630	0.2625	+003	0.2600
25 "	0.2635	0.2645+003	0.2660+005	0.2660	0.2670+003	0.2675+001	0.2680	0.2680	0.2670-008	0.2680	+003	0.2620
26 "	0.2445	0.2445+003	0.2490+01	0.2490	0.2495+002	0.2495	0.2500+002	0.2500	0.2470-01	0.2445	+003	0.2425
27 Westons	0.2310	0.2300+04	0.2300+02	0.2300	0.2325+01	0.2325+01	0.2330+002	0.2335+002	0.2190-05	0.2110	-04	0.2110

Referring to the table we find that at a temperature of 70° of twenty-three specimens tested seventeen changed in weight; fourteen gained from .001 to .02; four lost from .002 to .02; six showed no change. After a temperature of 86° twenty-three changed; twenty-one gained from .001 to .05; two lost from .007 to .009; four showed no change. After a temperature of 95° a change in weight is shown only by three, these losing from .003 to .01; the balance, twenty-four, showed no change whatever at this temperature. The next increase of temperature marked was 104° . Nineteen changed in weight, and all these showed a gain of from .001 to .01. After a temperature of 113° fifteen showed a gain of from .001 to .01. After a temperature of 130° sixteen showed a change of from .001 to .009. The highest temperature reached for these experiments was 140° ; and we find after this that twelve showed a change. Seven gained from .001 to .004; five lost .001 to .005. This last temperature was reached on May 16; May 21, a. m., twenty-three showed a loss of from .001 to .05. This loss is marked from the temperature of 140° . Four showed no change. May 21, p. m., the loss or gain from original weight was as follows: Seventeen lost from .001 to .04; eight still retained moisture of from .003 to .02. On June 8 twenty-six showed a change from original weight. One still retained .003 moisture. Twenty-five lost from original weight of from .001 to .04. Only one at this date showed no change.

Whether the loss of weight is the result of disintegration or simply the result of contraction I have no means of determining. It appears though that it is caused by both of these factors, for a batch of specimens kept in water at a normal temperature for over a week also lost a small percentage in weight, this probably being entirely due to shrinkage.

The facts presented are these: Two specimens did not show signs of porosity until a temperature of 104° had been reached; after a temperature of 95° three showed a decrease in weight—the balance not absorbing any moisture; at a temperature of 104° these three made good this loss; the loss in weight recorded on June 8 is more the result of increased porosity than of contraction.

In determining the method for experimentation I was actuated by the thought of thermal conditions brought about by the eating of food and the temperature at which we take it. By testing all

food taken during a certain period I find that the temperature varies greatly, but that food may be taken with entire comfort at 140° F., or slightly over. Some food may be taken at 150°, as the heat diffuses so quickly, making this high temperature but little noticeable. The transmission of such a temperature through the medium of membranes adjacent to the gingival margin of fillings made of oxyphosphate of zinc gives one food for thought as to one of the causes of failure at this point.

GERMAN DENTAL MISCELLANY.

Translated for the DIGEST by Dr. B. J. Cigrand, Chicago.

Frequency of Dental Caries, by Dr. Berger. According to statistics the frequency of dental caries in children is decidedly on the increase. The investigations of Roemer disclose the fact that dental caries advances with civilization and diet; the latter being the prime cause. In Switzerland in 1891 the results of close investigation gave the alarming information that 94.2 per cent of all children between the ages of seven and fourteen evidenced dental caries. A like research into conditions of Sweden showed that 97.27 per cent were afflicted. England gave a more favorable table; in this country the percentage was 87.3. The city of Hamburg, Germany, showed 98.5; Wuerzburg, 84.6; Kaiserlaûten, 99.5; Freiburg, 99; in Schleswig-Holstein, 95; Finland, 90.

A careful study of these facts evolved the theory that climate, diet and civilization were not the only conditions which must be taken into account, as soil was after all the underlying circumstance which contributed most essentially to the problem of dental caries. The famous investigator, Rose, gave this important deduction and his theory of dental caries has brought him many adherents. He makes the claim that countries where the soil contains little lime have a population with weak teeth and dental disease; while in countries like England, having soil with an abundance of lime and chalk, the teeth are of better quality. He observed further, that where the people bake their bread soft and doughy the teeth are badly decayed; but where the bread is baked hard and contains the bran of the wheat the teeth are in a much better condition. He argues that the bran of the wheat contains the very element which strengthens the tooth structure during the period of tooth evolution.

Dr. Berger recommends that the rising generation be informed of

the virtue of the whole-wheat bread and that diligent care of the teeth is necessary if the coming people hope to see the age of 60, which is fully one-third less than it ought to be. He also calls attention to the fact that dental powders and pastes should contain a liberal amount of alkaline ingredients, and that present time mouth and dental preparations do not receive sufficient attention from the professions.

German Army Dental Surgery.—Dr. Lippold was recently appointed by the Emperor chief of the field-dentists of the troops in China. He leaves for that country immediately, and will be prepared to give dental service not only of a surgical nature, but on the prosthetic as well as operative side. His entire equipment will be shipped and he will have the authority to call for assistants if he requires them. He will make his headquarters for the present at the general's home.

Drs. S. Reinhold and L. Meyer were appointed as royal dental surgeons to the Shah of Persia. They were decorated with the badge of the order of Lions, and appropriate medals were struck in honor of their appointment.

Dental Society of Scientific Culture.—A society with this name was recently organized at Dresden, and has for its specific purpose the following objects: 1. Study of the causation of dental caries. 2. Financial support to such of our profession as are doing original work in solving the problem of dental caries. 3. Teach the general public care of the teeth. 4. Support and influence of higher dental education, with special reference to college education. Among its members are counted the most learned and scientific of Germany, and the good which this association of eminent men can accomplish is clear to all who understand the method of German government aid.—*Vierteljahrschrift Zahnheilkunde*, No. 4, 1900.

Mummification Paste.—Of late considerable attention is being given to pastes which will completely mummify the dental pulp. Most satisfactory results can be had from the following: Calomel and zinc oxid equal parts, and sufficient amount of formaldehyd to make a paste. The formaldehyd readily evaporates and so it will be necessary to occasionally add more of it to the mixture.

Removing Broaches.—In case you break a barbed broach off in the canal, you will find it a good method of removal to saturate the cavity and canal with a 25% solution of pyrozone. In a difficult

case saturate a pledget of cotton with the pyrozone and introduce it into the cavity, sealing same with gutta-percha or sandarac, and leave it in the tooth for upwards of three or four days. When the patient returns take out treatment, and the broken broach is readily removed, since the pyrozone has completely rusted and almost eaten it up.

Dental Statistics.—It will be of interest to recent graduates to learn the number of dentists practicing in thickly populated countries. These figures are taken from government reports. Sweden, with a population of 5,500,000, about the same as Pennsylvania, has 300 dentists, and of this small number but eight have the degree D.D.S. Pennsylvania has 2,285 dentists. Norway, with a population of 1,700,000, about the same as Wisconsin, has 180 dentists, eleven of whom have the degree D.D.S. Wisconsin has 795 dentists. Denmark, with a population of 2,500,000, about the same as Michigan, has 200 dentists, six of whom are D. D. S.'s. Michigan has 910 dentists.—*Zahntechnische Reform*, Nos. 17-18, 1900.

ABSCESS OF THE ANTRUM.

BY C. S. BRADLEY, D.D.S., BELOIT, WIS. READ BEFORE THE WISCONSIN STATE DENTAL SOCIETY, AT LA CROSSE, JULY 17-19, 1900.

There are few dentists who have practiced for any considerable length of time, who have not had patients suffering from abscess of the antrum. The history of these cases as they come to our observation from time to time is most interesting and varied. Dental surgeons are not always the best of oral surgeons, and general surgery has not yet become a part of our college curriculum; so unless oral surgery as a specialty is the end in view, the student treads but lightly upon this pathway of dental science.

Abscess of the antrum is not of such infrequent occurrence that we can ignore it; and when caused by carious or diseased teeth, the dentist who is master of recent theories and methods of treatment, capable and alert to the issue, is most eminently qualified to care for the patient's best interests. Excepting perhaps the rhinologist, the general surgeon or practitioner should prove no peer. Operating daily in the oral cavity; skillful in the use of the dental engine; with the best knowledge of tooth anatomy and diseases of the dental pulp; why should the dentist be other than master of this particular part of surgery?

Abscess or empyema of the antrum of Highmore may be the results of infection or inflammatory process from the following sources: The nose, ear, frontal sinus, ethmoid sinus, or the teeth. It may arise from traumatism, the presence of foreign bodies within the antrum, or in connection with the eruptive fevers or syphilis. It may be acute or chronic and affect the health to such a degree that serious constitutional disturbances are caused. The symptoms are severe frontal or infraorbital pain on one side, feverishness, fetor, lateral swelling of the cheek, sudden discharge of pus from the nostril of the side affected, usually on bending forward or on arising in bed, bulging of the eye, molar carious, tenderness to pressure over the upper jaw. Some of these symptoms frequently follow after extracting a tooth. It is often difficult to diagnose the acute form. The roots of molar teeth may penetrate and their apices may be covered only by mucous membrane or by a septum or tubercle of bone. These teeth may improperly bear the blame of being an exciting cause, as they may take on an inflammatory condition from catarrhal or other antral affections and thus prove misleading factors to the dentist.

Statistics show a small percentage of abscessed teeth have any connection with the antrum, and protrusion is the exception rather than the rule. Another misleading condition, but not an infrequent one, is the presence of some growth, such as sarcoma, carcinoma, epithelioma or the benign tumors. To illustrate, I once had a patient whom a physician brought to me to have the antrum opened up. Nearly all the usual symptoms were present: unilateral discharge from the nose, swelling and tenderness to pressure over the maxillary bone. Examination of the teeth showed several bicuspid and molar roots with pus discharging on pressure. The diagnosis seemed simple. After extracting the roots a probe could be passed into the antrum without resistance, the outer plate of bone was nearly all destroyed, but beyond this the probe encountered a yielding pulpy substance. It proved to be a cancerous growth, and the patient being old and unwilling to submit to an operation, death ensued in a few months.

Another case was that of a man aged fifty. The symptoms were pain and tenderness in the infra and supraorbital regions, a slight swelling of the face and discharge from the nose. There was a badly decayed second bicuspid, pulp dead and tooth sore to the

touch. It was removed but there was no necrotic bone or sinus above it. An exploratory puncture was attempted without an anesthetic, but the patient's courage proved so poor he was discharged for the time being by the physician in attendance. He suffered greatly for a few days and sent for a different physician, who after several weeks of constitutional treatment declared the trouble healed. There was no doubt in this case of the inflammatory condition of the antrum, but the source of infection was unquestionably the frontal sinus. Therefore, it is not always safe to assume that a carious or abscessed tooth existing with antral suppuration is an exciting cause; and in a large majority of cases the first molar will prove the seat of trouble beginning with the teeth.

I have found that authorities are far from agreeing as to prognosis. Bishop in "Diseases of the Ear, Nose and Throat" says: "The prognosis is not an inspiring one. The nature of the case is unfavorable to spontaneous resolution, and if the bone is necrotic a tedious time is to be expected." The American System of Dentistry says: "Inflammation of the antrum is not met with as an idiopathic affection; it occurs as the result of an injury and as an extension from a diseased tooth. A cure is obtained by freely opening the antrum and cyst. After evacuating the contents, stimulating injections and a drainage tube induce rapid healing." Dr. Streeter says: "I believe diseased antrum is more often overtreated than otherwise. Little or nothing except to provide for and keep the parts clean should be done after the surgical part of the operation is completed." From Gould's Year-book of Medicine and Surgery I quote: "Cobb, from a study of thirty cases, believes the antrum heals rapidly if the cause of suppuration is removed. He relates a case in which suppuration was maintained by some soluble rubber injected through a root-canal into the antrum. (The author evidently means by 'soluble rubber' chloro-percha, and the root of the tooth must have penetrated and been devoid of other protection than the mucous membrane.) In another case the second molar had erupted in the antrum. Seven of the cases were due to acute catarrhal conditions. His observations of speedy cure do not correspond with those of most observers."

No line of treatment can be laid down to meet all requirements. Acute inflammatory conditions arising from other sources than the teeth should unquestionably be referred to the rhinologist. I

believe the method of treatment most common among dentists is to extract the affected tooth and introduce a drainage tube, using the natural ostium in the nose as a counter-opening. This treatment, though slow and tedious in chronic cases, usually meets with success, but it is certainly open to serious objections. If the tube is too short the mucous membrane quickly closes above it; if too long, the pus is not all drained off. Perforating it does little good, as clots soon clog the small openings and necessitate daily removal for cleansing. Unless firmly clamped to an adjacent tooth there is danger of its pushing through. There are many cases recorded where an operation has revealed a drainage tube, hard wood plug, or other mechanical contrivance employed in treatment.

It does not matter what antiseptic, be it liquid or powder, is used—treatment by irrigation will frequently result in failure.

It is not an unusual occurrence to find a septum of bone extending above the floor of the antrum that may form a pocket or separate compartment most inaccessible and difficult to medicate. (Dr. Anderson of Tomah has kindly consented to exhibit a skull showing this septum.) A complication of this kind will yield only to operative treatment by thoroughly removing all septa and necrosed walls, and freshening the indolent granulating surfaces with the curet. An operation of this kind, followed by packing the entire sinus with antiseptic gauze, is the only sure method to be employed. The best point to perforate the antrum where an extended operation is intended, is directly above the roots of the second bicuspid and first molar. The opening should be large enough to admit of thorough exploration and treatment. I believe treatment by gauze packing to be the only sure method where suppuration is chronic.

I recently treated a patient where suppuration followed extraction of the first molar. I found a free opening through the socket of the palatal root, and it seemed unnecessary to make another perforation. I took a large surgical bur and enlarged the opening in a buccal direction until it was somewhat larger than a lead pencil. After thorough irrigation I had no difficulty in packing the antrum tightly with gauze. This was the only method of treatment employed, and all discharge stopped within two weeks. The case was a chronic one, and had it been treated by irrigation alone would have caused trouble for months. The gauze was cut in

a long narrow strip and a silk ligature was tied to one end for convenience in removing and fastening to an adjacent tooth.

To make a brief summary: I believe acute empyema is frequently cured by evacuating the pus through the natural ostium or by perforating the alveolus, with little or no treatment. Further, that chronic suppuration, complicated by necrotic walls or septa arising from the antral floor, will prove most slow and disappointing under treatment by irrigation and often result in entire failure.

Discussion: *Dr. G. V. I. Brown:* There is no question but that the tube acts as an irritant and oftener prevents than facilitates drainage. In treating an antrum we should look first to the history of the case and ascertain the cause of disturbance; then decide whether it is acute or chronic, and finally treat. One class of antral infections I treat much less than formerly; the other I treat much more thoroughly than before. If we find the discharge is not very purulent, and if there is no history of its having continued a long time or having been treated before, I make as small an opening as possible, so as to give as little exposure to infection as may be, and after washing cavity out a few times I stop, instead of treating over and over again as was formerly my practice. I prefer to make opening from the buccal side above the alveolus, and to have it in the vicinity of the cuspid fossa. Using the socket of the extracted tooth is an unpleasant way of getting at the antrum, because there is usually quite a distance before the cavity is reached, and the space between is not only subject to infection, but is easily irritated and always painful. On the other hand, by going through the thin wall of antrum you can treat it more easily, effectually and with less pain. If discharge ceases after short treatment, discontinue; but if the condition is such as to indicate necrosis, or if the patient has been troubled for a considerable time, cut away enough to expose the inside of antrum, so that with light you can examine the entire surface; then pack with gauze saturated with three per cent carbolic acid, and when removing packing note where the discharge comes from, so that you may clear it up. Continue to pack until new granulations form, then take out gauze and let antrum heal. Treat the antrum just as you would an alveolar abscess, and it will usually get well. By this method tubing and other things are not left in the antrum as they are when it is treated through a small hole. Recently I opened an antrum which had been under

treatment for some time, and when I made the V-shaped incision with a knife a large sequestrum of bone rolled out. Nature was simply trying to get rid of it. After a few washings the antrum healed up nicely. I usually depend upon hydrogen dioxid for the first injection, as it removes any little incrustations over the nose and carries away certain products antagonistic to healing. Where the opening does not heal readily, careful observation will show that the discharge has not entirely stopped.

Dr. B. G. Maercklein: In severe cases the first act should be to completely fill the antrum with a fifty per cent solution of sulphuric acid, which will dissolve out any necrosed bone that may be present and will not injure the healthy tissue or bone. Further, it has a slight astringent effect on the healthy tissues, stimulating them to unusual action. Next, cleanse the antrum in the ordinary way until discharge ceases, and let nature do the healing. In closing the opening the edges should be kept well stimulated with tincture of iodine, which causes considerable granulation to form. When the edges nearly touch, you can cause them to unite by lacerating both sides so that they bleed and a blood clot forms in between.

Dr. H. E. Fox: I had a case recently where the antral trouble had been running for some time. Various ordinary methods of treatment did not give the relief they should, so I made a wider opening into the antrum and found that a copper point had been pushed nearly through the root of the first molar, and it was this foreign body which had undoubtedly caused all the trouble, for after I had amputated the root and thoroughly cleansed out the antrum it healed without giving further trouble.

DEAR ILLINOIS, TO THEE.

BY GARRETT NEWKIRK, D.D.S., LOS ANGELES, CAL.

Dear Illinois, to thee,
Wherever we may be,
Our hearts return.
We love thy tile-drained rills,
Thy meek and lowly hills,
Thy scenery without frills,
And coal to burn.

We love thy flocks and herds,
Thy migratory birds,
In spring or fall;
Thy lively northern breeze,
Thy corn that grows like trees,
Thy swine that swarm like bees
At Armour's call.

We love thy lightning bright,
God's own electric light,
And thunder's din;
Where evening brings the dew,
Where all thy lakes of blue,
Canals and rivers too,
Have water in.

Like billows of the main
Thy fields of waving grain
Stretch forth afar,
O'er prairies rolling wide,
Free schools on every side;
With patriotic pride
We greet thy star.

From this far western shore
We send "All hail!" once more,
And wish thee joy;
And whereso'er we roam,
On land or wild sea foam,
Our hearts shall call thee home,
Our Illinois.

LEUCOPLAKIA BUCCALIS AS RELATED TO SYPHILIS AND CANCER.—Alfred Fournier concludes that (1) Leucoplakia is an affection confined almost exclusively to the masculine sex (three hundred and nineteen cases out of three hundred and twenty-four). (2) The two principal etiological factors are syphilis and tobacco. (3) It ends in buccal cancer with a frequency greater than thirty per cent. (4) When found in syphilitic subjects it proves absolutely refractory to treatment said to be specific for syphilis. (5) Its pathological classification would place it among the parasyphilitic affections. (6) Finally, it makes a great difference in the prognosis of syphilis since so many syphilitics die of buccal cancer through the intervention of leucoplakia.—*Gazette Hebdomadaire*.

Digests.

EDUCATION AND EXAMINATION OF EXAMINERS. This must, according to the editor of *Truth* (London), be undertaken in a scientific manner before our educational system can be rendered satisfactory. He would have a school established for examiners and allow no one to conduct an examination or set a paper unless he had graduated with honors at that establishment. For "the idea that because a man has been through the mill himself, or has written books, or given other proofs of learning, he is therefore competent to examine his juniors, is quite a fallacy, as may be seen from half the examination papers with which the rising generation are afflicted." Examiners are divided by *Truth* into three classes—first, those whose object in setting a paper is to display their own knowledge or air their pet theories; second, those whose primary idea is to bowl out the candidates—"cross-examiners" who occupy themselves chiefly in discovering what the candidate does not know; lastly, the true examiners, who seek to ascertain what the candidate really does know. It is suggested that, roughly speaking, examiners are equally distributed among those three classes, from which it follows that only about one-third of them are really fit for their positions. In conclusion it is asserted that "Any expert who knows his subject thoroughly can floor a nervous youth in the examination-room; but to give him an opportunity of doing himself justice, to measure up, not his ignorance or stupidity, but his knowledge and intelligence, is an art requiring special gifts specially cultivated." But how, it is asked, can we possibly reckon on getting that unless we first examine the examiners?

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FETID BREATH. Prof. B. Fränkel (*Archiv für Laryngol*) offers some remarks upon the subject of disagreeable odors arising from the mouth and other parts of the respiratory tract. In order to determine definitely whether the odor arises from the nose or the mouth, a piece of cardboard of suitable dimensions is held against the upper lip beneath the nose, and the patient, with the mouth closed, blows first through one nostril and then the other. The observer sits with his nose at the opposite edge of the cardboard, and may in this way determine whether one or both nostrils

afford the source of the odor. Then with the nostrils closed the patient is allowed to breathe through the mouth. If one has determined that the odor arises from the mouth, it is necessary to further decide whether any particular portion of the mouth or pharynx is responsible for the odor. To accomplish this Fränkel collects the secretion on a cotton applicator from each suspected spot, and submits it to his own olfactory judgment.

Not rarely carious teeth are responsible for the fetor. In such cases the dentists can usually remove the odor. In other and not rare instances the various tonsils with retention of secretions in their follicles or small caseous abscesses in the tonsillar tissue form the source of the odor. For the relief of these cases the author suggests splitting the tonsils, dilating the openings of the follicles, the local application of Lugol's solution, or amputation of the tonsils, as the case may require, in order to remove the source of the odor. He lays special stress upon the plica tonsillaris and the recessus tonsillaris as localities in which frequently the decomposition of secretion has taken place. By splitting up the folds with the scissors under cocain anesthesia success is attained in the treatment of such cases. If it is possible in this way to locate the source of the odor, the treatment is easily carried out and generally successful, but in other cases where the secretion of the entire mucous membrane has undergone fetid decomposition, or where the disagreeable odor arises from the lower respiratory tract or from the esophagus, the prospect of treatment is not so good. One must always recommend in such cases that the mouth and throat be thoroughly and frequently washed out with some bactericidal and deodorizing medium.

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REGULATING DEVICE. By Dr. J. A. W. Lundborg, San Francisco. This case was nearly fifty years of age, and had been told that "so late in life" nothing could be done towards regulating. The task was to regulate the superior anterior teeth, in bringing into right position the left lateral protruding and the adjoining cuspid tooth, which occupied the same position since its eruption, occluding within the true range of the inferior teeth; consequently, they being out of their proper place, were to be attended to at the same time; the left superior central was missing, and was to be replaced by an artificial tooth.

The device employed was, I believe, original, was perfectly safe

and effectual, and accomplished the desired object with comparatively no inconvenience or suffering. The device consists of a thin vulcanite splint, covering the coronal surfaces of the molars and bicuspid, extending to the margin of the gum. The portion of splint, covering the palatine surface close to the anterior teeth only, is about one-half inch wide and one-eighth inch thick. An undercut slot in the rubber serves to anchor a piece of rubber tubing, to be stretched over and around the lateral to be moved into its proper place. The rubber splint is to be filed away as the rubber tubing draws the lateral into place, thus obviating any obstruction. A gold screw with deep cut thread is screwed into the rubber through and against the cuspid tooth, close to the gum, and the screw turned half around once every twenty-four hours; and when it is observed that the cusp is overlapping the inferior teeth, the splint covering the molars and bicuspid is cut away and occlusion will help to do the rest of the work in connection with the screw, which should receive the same turning till the desired position is reached. An impression is immediately taken and open-faced crowns provided for the lateral and the right central, with an artificial central soldered to the open-faced crowns to replace the missing central. Meanwhile the inferior teeth have been manipulated by ligatures and attain a correct position. Success in almost all orthodontia cases depends upon the adherence by the patient to the instructions given. I find in my experience that the gentler sex predominate as patients; of the hundreds of orthodontia casts in my cabinet more than two-thirds belong to women.—*Pacific Gazette, Dec. 1900.*

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MOUTH-BREATHING AND ITS RELATION TO DISEASES OF THE THROAT, EAR, NOSE, AND ACCESSORY CAVITIES. By Mayo Collier, F.R.C.S. Mouth-breathing is evidence that the physiological functions of the nose—the warming, the moistening, and the filtering of the air—are more or less in abeyance, and so lost to the respiratory function; and deficient nasal respiration means nasal obstruction in its wider sense. Long-continued mouth-breathing, even where the nose is healthy, begets more or less complete atrophy of the muscles and tissues of the external nose, with collapse of the alæ, and gives a sharp and pointed expression to the features. So that mouth-breathing, if persisted in even in the hypothetical condition of a healthy and patent nose,

would ultimately induce anterior nasal obstruction from atrophy following disuse of the nose valve. This would be followed by swelling of the lining membrane of the nose and accessory cavities from vascular dilatation, which again would lessen the capacity of the nasal respiratory tract and tend to set up nasal obstruction. A vicious circle is thus set up. Obstruction to nasal respiration may set up a rarefaction of the air contained in the frontal, ethmoidal, sphenoidal, or maxillary sinuses, and cause congestion of the lining membrane and a possible outpour of fluid and blockage of the natural vent, even though there is no previous disease or catarrh present. So that in diseased conditions of these sinuses the first step in treatment is to see that there is a free inlet of air to the respiratory passages; this holds good in both the chronic and acute cases. Politzerization is of little value; a permanent and continuous air supply must be established. The association of mouth-breathing with high palate, a symmetrical upper jaw, prominent nose, open mouth, and thin, flattened face, is a constant one. A small increase in pressure from without, constantly applied to the walls of the nasal box, pushes up the palate, disarranges the mandibular arch, and causes general atrophy and an undeveloped condition of the whole upper jaw. If such cases are taken in an early stage and the nasal respiration restored, the constant stream of air passing through the nose moulds and expands the upper maxilla, and in time the greater part of the deformity will disappear. Further, the anemia, loss of weight, and listlessness of children with post-nasal growths is probably due to the want of proper oxidation at night. Remedy this and their return to health is usually prompt.—*Lancet*.

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TO QUIET NERVOUS PATIENTS WITHOUT ANODYNES.

By J. R. Bell, D.D.S., Cleveland. There are patients who are made better subjects, and are more easily operated upon, by being previously prepared. For instance, the disuse of stimulants, or the use of a mild laxative, is often advisable, and it is especially necessary that some be advised to remove their collar before taking the chair, for fear of strangulation. Sending a child to the toilet-room often makes it more tractable. For several years I have had a hot soap-stone placed on the foot-rest under my patient's feet, if the feet are damp, or if the person is chilly or nervous; this acts like magic, in quieting and soothing, often makes them drowsy, and in many

cases puts them to sleep. We get splendid results from the "Egnalizer," as we call it, with delicate, nervous, timid patients, whose circulation is weak and have an enlarged imagination. Then we find we can work longer, with much less fatigue both to ourselves and patients, in a temperature lower than in most schools and living-rooms. And when we remember that the temperature of the body is several degrees lower in a sitting or reclining position, and that our operating chairs are placed near a window, where there is more or less draught, the "Egnalizer" and a lap-robe over the feet and limbs act as a panacea for ills imaginary and real.

Recently I succeeded in quieting a peculiar difficulty in a patient in a simple way. The case was a lady, aged about forty-five, who, after I had gotten my morning's work laid out and well under way, evinced an uneasiness and restlessness, all of which seemed to originate in the left arm and hand. Upon inquiry I learned that the arm, from the shoulder, felt numb, twitched and disturbed her otherwise quiet nature, and as her uneasiness was certainly disturbing me and the operation, I had a hot soap-stone placed under her feet, and a vessel of hot water placed in her lap, in which I asked her to immerse the affected hand. To my delight the patient settled back into a more comfortable position, with a beatific and peaceful smile, and I proceeded and finished my work without a single wriggle or movement just as if she had no arm; in fact, she dozed several times before I finished. The hand was in the hot water only a few minutes; therefore I can not ascribe the change in her circulation altogether to that. A hot-water bag might be very useful in similar cases, as we know they are an indispensable article in the sick-room and in the hospital, and more especially in all surgical cases where there is pain about the abdominal walls.—*Ohio Journal, Dec. 1900.*

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SALIVA ANALYSIS AS AN AID IN DIAGNOSIS OF DIATHETIC DISEASES AND GINGIVO-DENTAL CHANGES.
By Dr. Michaels, Paris. Read before the International Dental Congress, at Paris, August, 1900. As a prelude to his work it became necessary to investigate the histo-chemistry of normal saliva, concerning which subject the literature is very meager. It became necessary therefore to pay especial attention to the saliva, its essential physical and chemical properties and its changes in composition, and the relation of these factors to pathological states. It was

found that the saliva, like all recrementitious secretions, is liable to physiological oscillations in constant relation to the changes in the humors of the body. The saliva is swallowed so soon as it is produced; its emission is followed by a new absorption, and this results in the formation of a sort of circuit very interesting to notice, and of which account must be taken, for the passage of the saliva into the blood effects under normal conditions a sodium combination; while it is eliminated in a condition which varies, at times being acid and at other times alkaline or neutral. On the other hand, every crystallizable chemical principle, every acid, alkaline or neutral salt, even the alkaloids, biliary pigments, or the free acids, circulate in the plasma in variable proportions, and are found in the saliva in certain diathetic phases. The organoleptic properties of normal saliva are not characteristic except when compared with diathetic saliva, but in studying the differences we learn quickly to recognize and distinguish one from the other.

By reason of the numerous characteristics which saliva presents in the different conditions of health the following problems have arisen for consideration: 1. What are the principles which differentiate physiological from pathological saliva? 2. Is there any correlation between the chemistry of saliva and the different diathetic states? 3. Does the cacoehymic state produce morbid saliva capable of influencing the gingival dental tissues? 4. Does saliva follow the biochemical oscillations? 5. Is the composition of the saliva simple or complex? 6. Is it possible to establish a classification of organoleptic characteristics of saliva, and refer them to particular conditions of health? 7. Is it possible to point out the causes of the variations of saliva?

Certain salivas are clear, liquid and transparent, while others are viscid and thick. Some are reddish, yellowish or greenish in color, while others are clear as water. Some have a great quantity of froth; others have very little, or even none at all. In the space of two days some kinds decompose, while others even after a year have no odor. Chemically, some contain sulfoeyanids in different proportions; others do not contain any at all. In some we find crystallin salts; others have none. Certain salivas contain fatty substances or emulsions, and others biliary pigments or urobilin. In a hundred samples of saliva of different origins preserved in sealed tubes, after several days a series of colorations will probably appear

(six or seven very distinct ones have been found). These can be classified according to diathesis. These colorations characterize the presence of certain principles—biliary pigments, or principles which determine the diathetic state.

Dr. Michaels' study comprises the examination of three types of saliva: First, of normal healthy saliva; second, of that of a hypoacid diathetic individual; third, of that of a hyperacid diathetic individual. Investigation was also made of the functions of the liver, of the biliary principles; the influence of changes, and the presence and absence of these principles in the blood-plasma and in the salivary secretion. The essayist regarded this phase of the research as of grave importance, for the reason that among the substances which he had discovered in the saliva through chemical analysis a great majority came from the liver. The presence of these substances in the saliva is significant, and gives importance to the study of the function of the hepatic toxins.

The results of Dr. Michaels' study tend to show that the pathological modifications of the saliva are in direct relation with diathetic conditions. The technique of the study was most elaborate and carefully carried out, and while it involved much labor, time and care, is not regarded by the essayist as by any means exhaustive or final. The essayist defines diathesis as a "general disposition of the organism by virtue of which the individual is attacked by one or different determined diseases through a pathogenic cause, which brings about the morbid condition of the blood." The tissues and secretions depend upon the blood plasma; a dycrasic condition modifies the forces of the economy and produces local or general manifestations capable of taking place alternately and successionally. Abnormal vital processes end in man in two ways—hypoacidity and hyperacidity.

The first state (*lymphatism*) is the expression of a vital overactivity having as its consequence the contagious diathesis as in scrofula, tuberculosis, syphilis. The oxidations are overactive and the hydrations in excess of the normal, hence there is a decrease in organic acids and an increase of saline chlorids excreted by the economy. Hypoacidity, according to Ducloux, favors the chemical changes in the tissues. In the hypoacid diathesis all the oxidations are exaggerated, and in consequence above the normal.

The second state, hyperacidity (*arthritis*), is the expression of a

decrease in vital activity, from which result the diathetic states, as in gout, rheumatism, sclerosis. The oxidations are incomplete, and as a consequence there results an increase in the quantity of organic acids. Hyperacidity is a particular state of the organism characterized in a general way by slowness in the biochemical changes. The reaction of the blood with the ordinary reagents (litmus, for example) is normally alkaline, but if we study the distribution of the acids and bases of the blood-plasma we see that the reaction is really acid (Gautrelet Douin, and Hugounenq); and this acidity is increased, and the blood may become decidedly acid by the accumulation of the acid waste products which are not eliminated. The secretions and excretions become then of acid reaction. It is for this reason that a certain number of chronic diseases have constant characteristics in regard to semeiology—an increase of the normal acidity of the urine, as well as an increase of the normal acidity of the saliva.

The conclusion to be deduced from the foregoing is that so long as we have not discovered the cause of morbid states (immediate and mediate alteration of tissues), and so long as we have not made a more serious study of the essential factors of biochemistry and of the relations of diathesis with the salivary excretion, we will not be in a position to explain in a precise way the morphological differences of dental caries.

After giving a description of his technique and the history of previous work in this field, with an account of the substances found in normal as well as abnormal salivas, the essayist presented a tabulation of his investigation of normal and diathetic salivas, showing the number and character of the cases studied. (The table is not reproduced here for lack of space.) The repeated studies made by the author with respect to the composition and characteristics of pathological salivas have enabled him to easily distinguish the several diatheses from an examination of the saliva, which he finds shows special characteristics for each diathesis.

Theoretically, the idea of a physiological saliva where all the biochemical principles are in a state of equilibrium is probably easy to conceive, but in practice its realization is very rare; that is to say, the saliva of a human adult without diathesis and with healthy teeth is but seldom found. The author's analysis showed an interesting relation between the proportion of ammoniacal salts and

sulfocyanids with reference to dental caries, his deductions upon that point being as follows: In the hypoacid state ammonia exists in greater quantities than the sulfocyanids, and dental caries is active or rapid according to the diathetic period. In a healthy state the sulfocyanids and ammonia are in equal proportions and in small quantities, and there is immunity to dental caries. In the hyperacid state sulfocyanids are in greater proportion than ammonia, and there is immunity from or but slow progress of caries. Uramid (oxaluric acid) produces the diathetic variety of caries. Potassium in combination with a sulfocyanid provokes abrasion of the teeth. The importance of the significance of these nutritional waste products in the bodily fluids and excreta as diagnostic of diathetic and diseased states was practically demonstrated by the author, he having been able to make a diagnosis from specimens of blood 1 c. c. in quantity, 5 c. c. of urin, and an equal quantity of saliva. His examination showed the case to be one of cancer in the cachectic period, which diagnosis was confirmed by the hospital surgeon who had the case in charge and furnished the specimens for examination.

After a presentation of his work in the investigation of the saliva of gouty and rheumatic cases, the essayist presented the following conclusions with regard to the chemistry of the saliva: 1. The analysis of saliva is of importance for the diagnosis of chronic affections (diathesis). 2. The saliva contains every soluble and chrys-tallizable principle which is found in excess in the blood-plasma, and which is susceptible of being dialized through glandular activity. 3. Every chemical principle—salts, acids and alkaloids in solution—in pathological saliva is found on histological preparation after precipitation and crystallization by means of spontaneous evaporation or active drying of the liquid, in the form of crystallin bodies or determined spectral lines, first by the form, second by the coloration in the micropolariscope. The salts formed in this way are always identical for the same diathetic states, but their coloration varies according to the intensity of the different periods of the diathesis. 4. The diagnosis of a diathetic affection can be established by the following elements which the analysis of the saliva provides: (a) The observation of the differential characteristics of the chemical, physical and organoleptic properties. (b) The analytical procedure (reagents, microscope, and micropolar-

iscope), which enables us to discover the organic, alkaloids, acid salts, urobilin, biliary elements and pigments. (c) The presence of acid salts in the saliva visible by polarization indicates a hyperacid diathesis. (d) The presence of crystallin salts invisible by polarization but visible under the microscope characterizes the alkaline chlorids which indicate a hypoacid diathesis. (e) The saliva of adolescence contains a dextrin principle (glycogen) susceptible of fermentation under the influence of ptyalin in the presence of earthy salts. In this way is obtained the dissolution of the earthy salts by the substitution of lactic acid for carbonic acid. (f) The saliva contains definite chemical principles which arrest or retard the progress of dental caries (sulfocyanid of ammonia). (g) The alkaline sulfocyanids arrest the formation of putrefactive fermentation. (h) Chemically, dental caries is a disease of demineralization, due to the presence of an excess of acid principles in the saliva having a greater affinity for the chemical constituents of the teeth. (i) The chemical affinity of potassium and sodium is greater than that of the earthy alkaline basis in combination with acid salts. (j) Lactic acid possesses a greater affinity for calcium than does carbonic acid. (k) Active dental caries characterizes the hypoacid diathesis. (l) Diathetic dental caries (gout and diabetes) results from lactic acid fermentations.—*Cosmos, Dec. 1900.*

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CHEMICAL ASPECTS OF NEUROSIS. By J. S. Cassidy, M.D., D.D.S., Covington, Ky. Read before Ohio State Dental Society, December, 1900. When chemistry, directed by human intelligence, lays its relentless hand on organized structure, for purposes of analysis, the identity of that structure is forever lost. To prove the truth of this statement we need only select a tooth as an example for investigation. In building up this simple organ vitality governed the selective affinities of the nutrient radicals, with as much care as it does in the formation of any other tissue; and when this organ parts from the source of life it still retains the impress of the vital force; it is still organized. We can agree with Buzelius and others, that the constituent materials of this tooth as a whole consist of 28 per cent of so-called organic substance, and 72 per cent of calcium phosphate and other so-called inorganic salts. But in order to ascertain these results of analysis, the complete distinction of the tooth itself must precede the determination of the fact.

The chemist may tell in advance the effect, if any, on a given substance, by prussic acid, for instance; no one, however, can detect the immediate chemical reactions that possibly occur when this acid is introduced into the animal body.

A psychosis is a morbid mental state. This includes various conditions, such as insanity, idiocy, imbecility, mental irritability, depression, emotional excitement, morbid fears, volitional weakness, lack of self-control, weakness of memory, and a tendency to hypnotic and somnambulistic states; also certain cerebral symptoms, as stupor, coma, and some forms of headache. Neurosis is a morbid nervous state; not restricted, however, to morbid nervous state of functional character. A combination of mental and nervous symptoms forms psycho-neurosis, and all of these may be both or either subjective or objective.

The chemistry of cell metabolism, constructive and destructive, is now and probably always will be beyond the reach of satisfactory direct human examination; but animal and vegetable chemistry has not been restricted in the successful investigation of the nature of the secretory and excretory products, and of the proximate principles of the various tissues. Much has been accomplished in this direction that is suggestive of further interesting developments, and a still deeper insight into the more complex molecules. The proteids, for example, which form the chief part of the solid portion of blood, muscles, nerves, glands and other organs, and which animals obtain direct from the vegetable kingdom, are composed approximately of $C_{144} H_{224} N_{36} O_{44} S_2$; some also contain phosphorus. Proteids, when heated to a temperature of $150^\circ C$, give off relative quantities of NH_3 and CO_2 , corresponding exactly with those obtained by resolution of urea, $CO(NH_2)_2$, into ammonia and carbon dioxid.

This fact tends to show that albumen is a complex ureid containing one-fifth of its N in form of urea, a substance metameric with ammonium cyanate ($NH_4 CNO$). On the other hand, it is believed by some late authorities that proteids are built up by a series of cyanic alcohols, embodied on a benzene nucleus. May it not be possible that as N, when present as a constituent of organic compounds, enters the combination with two units less than its normal valency, it therefore induces some influence on the retrograde metamorphosis of proteids; and the development of leucomains in health, and

ptomains in disease, and also the rapid action of alkaloids in general when taken into the body?

From average results of various experiments it has been found that the proportion of CO_2 exhaled to the O inhaled is much greater during the day than during the night; with perfect rest day and night, twice as much, with active motion during the day, three times as much. The amount of O taken in during rest by day is only half as much as at night, and after active motion during the day the amount of O taken at night is still more. In fevers the amount of CO_2 exhaled, proportional to the amount of O inhaled, is much greater than in health; but in diabetes the proportion of CO_2 exhaled by day to the O inhaled is less than in health, and at night the amount of O inhaled may be less than half the quantity required in a state of health. In leucomia the proportion of CO_2 exhaled to O inhaled by day was much less than in health, and the amount of O taken at night was even less than during the day.

These facts, obtained through governmental patronage, prove at least that O is stored up in the body during periods of rest, and that this O of reserve is frequently supplemented by the constitutional O of the tissues, and also that the relative amount of O inhaled plays a most important part in the rise and fall of animal vitality.

Nervous tissues are alkaline in reaction, but become acid by active work. The acidity is due to lactic acid ($\text{C}_3\text{H}_6\text{O}_3$), and some uric acid ($\text{C}_5\text{H}_4\text{N}_4\text{O}_6$), greater in the gray matter than elsewhere. Of the inorganic constituents of the brain, aside from water, those of phosphorus are the most abundant, those of potassium next. Proteids make up a little more than one-half the solids in gray matter, one-fourth those in white matter, and one-third those in nerves. The gray matter contains twice as much phosphorus as the white, while the white matter contains 52 per cent of the monatomic alcohol cholesterin and fat, and the gray matter only $18\frac{1}{2}$ per cent.

Cerebrin ($\text{C}_{17}\text{H}_{33}\text{NO}_2$) is found largely in the brain (cerebrum), and lecithin ($\text{C}_{46}\text{H}_{84}\text{NPO}_9$), although occurring especially in the cranial nerves, is widely diffused in the animal organism. These two compounds form the so-called "protogon," which is the chief substance in the nerve centers and periphery.

Now as neuroses are involved in pretty much all forms of disease, it is plainly impossible to take up more than a few salient points.

Palpitation of the heart may be one of these, a symptom produced by various causes, reflex and direct. The heart itself is said to be a muscle, but with Whittaker we may ask, "what is muscular tissue anyhow but the terminal expansion of nerve fibre?" The most frequent causes of palpitation of the heart are the chemical, at the head of which stands poisoning by nicotin. (Tea, coffee and alcohol are also in this chemical class.) Tobacco-smokers form a large contingent of cases of heart neurosis. What chemical action nicotin performs in the body is unknown, but it is known that when disturbance shall have once occurred as a result of the excessive use of tobacco, even a moderate use will suffice to keep it up.

Although the baneful influence of nicotin is conceded as a prolific chemical cause of cardiac neurosis, the well marked injury to the whole nervous system observed in the chronic condition of persistent cigaret fiends must be attributed to other chemical reactions that are due to this alkaloid. The conclusions reached by Dudley after careful experiments in this direction with lower animals are, that nicotin plays only a subordinate part in producing the evils concomitant with the habit. He says it is the absorption into the blood of CO which causes the greater injury. As is known, CO₂ is one of the products of the combustion of tobacco. CO₂ formed at the burning end of the cigaret, instead of escaping into the air, is drawn back into contact with the heated carbon, and there suffers reduction, according to the equation: $\text{CO}_2 + \text{C} = 2\text{CO}$.

CO is a gas slightly lighter than air, colorless, tasteless and without odor. It is an unsatisfied dyad radical, anxious for more O, with which it takes up readily when permitted. It is the insidious poison that escapes through the heated cast iron of our stoves and furnaces into the atmosphere of our rooms, and there, whether in palace or cabin, even in the relatively small quantity of one part to ten thousand of air, exerts its silent influence against the health of unsuspecting people, inducing serious neurosis, such as heart palpitation, headache, loss of appetite, anemia, and systemic enervation, particularly at the close of a long cold winter.

When this poison is taken into the lungs by inhalation, in company with the smoke of the cigaret, it enters the circulation and attacks the red corpuscles, causing them to part with their hemoglobin, much like the physical effect produced on them by chloro-

form; but in this case appropriating the oxygen, and in so doing exerting a stimulating effect, followed by mutual and physical depression; a true psycho-neurosis.

Some of the paper wrappers of cigarets have been found to contain arsenic. This drug of itself might cause neurosis. While the immediate chemical action on tissue in rapid poisoning by arsenic is not fully determined, chronic poisoning by arsenic shows a wholesale destruction of proteids, and fatty degeneration; even if the arsenic took away only the sulphur of the proteids, the latter would, of course, be totally destroyed.

Alcohol, like CO, is combustible, and being so in the animal body as elsewhere, it seeks and finds oxygen. The O of reserve in the body is called upon and willingly responds; if excess of alcohol be present the O of the proteids, rather than that of the ethereal salts, is also called upon for the alcoholic equivalent. Thus both the principal and interest of the investment are used to support the chemical riots in body of victim; temperature, mental and physical power are diminished by the protean waste, in undue proportion to the temporary exaltation of the early stages of indulgence. The various neuroses caused by alcoholism are too well known to justify mentioning here, but if the habit be persisted in to the point of overindulgence, bankruptcy of the whole nervous system is only a question of time.

A person in health, free from bad habits and untoward circumstances, will furnish saliva usually alkaline. This alkalinity increases during and after eating, and decreases by experimental fasting; the writer has observed that fasting enforced by lack of appetite through excessive grief is accompanied by increase in the alkalinity of saliva, probably due to the extra development of ammonia from the proteids, and its combination with carbonic acid. Circumstances, however, may change this alkaline condition to a decided acid tendency, as is found with such diseases as catarrh of the intestinal tract, diabetes and acute rheumatism. Saliva may show a local acid reaction, caused by fermentation of food debris in the mouth, although it may be alkaline when secreted. Whenever it comes acid from the ducts, we may presume on the existence of some neurosis, and in either case bacterial influence may be considered necessary. In the opinion of the writer, bacterial influence is not independent of that exerted by the vital force; and chemical

changes in the mouth, as elsewhere in the body, are undoubtedly governed by the rise and fall in the regulating power of the life principle; in other words, the presence of what is regarded as a purely local disease of whatever kind, in the mouth or elsewhere in the body, is due to a combination of both local and systemic phenomena.

Not infrequently we have all seen caries of the teeth, after progressing rapidly for a time, completely arrested, and immunity from further progress continue for many years, although at the same time the local environment might appear in every way a most inviting place for prolific and continuous development of bacterial ferments. On the other hand, we often observe that caries proceeds rapidly in otherwise healthy and cleanly mouths. While these reversed conditions are not by any means the rule, they occur among all classes of people of every age so frequently as to show that dental caries is a disease consequent on some neurosis that permits the local play of chemical affinities more or less destructive to the teeth at certain periods. Has nature so impressed itself upon these organs, in pairs, right and left, that simultaneous decay occurs on corresponding surfaces during the same space of time, leaving their immediate neighbors unaffected, although apparently surrounded by similar extraneous conditions? An affirmative answer to this question is not contrary to the facts obtained by clinical observation.

Of late years leading writers in our profession assume the belief that structural perfection or imperfection, density, hardness or relative softness, in enamel or dentin, have little, perhaps nothing, to do with either resisting or submitting to the action of those local agencies to whose power the existence of dental disease is supposed to be attributed. Can it be that the influences for either good or evil which induce these opposite phenomena are the result of odic, nervous, or electrolytic force, or whatever combination of forces it may be called, pertaining to and following the lines of some periodic rule involved in the local issue? It is not sufficiently satisfying to be told what everybody knows—that heredity, that vague, indefinite impression for the past, recent and remote, is a recognized factor in influencing immunity from or encouraging susceptibility to certain diseases.

A state of health should not consist in the mere absence of disease alone, and as there are recognized odors peculiar to many diseases,

so also there ought to be a positive tangible evidence belonging to and emanating from the healthy body, which our olfactory nerves are not as yet capable of detecting, but which our dogs easily identify hours after our bodies have passed on the trail. Will chemistry some day be able to isolate this mysterious material principle of health? With these thoughts in view it is not too much to say, that in connection with local cleanliness as an adjuvant, regular systemic treatment in each case will be the largest item in the future story of dental prophylatic therapeutics.—*Ohio Journal, Jan. 1901.*

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BUCCAL AND DENTAL TUBERCULOSIS. By Dr. S. Bernheim, Paris. Read before International Dental Congress, at Paris, August 8, 1900. Tuberculosis and its bacillus is to-day the subject selected by numerous investigators. Methods of investigation and of early diagnosis have been proposed that are of interest not only to medicine, but also to every practitioner likely to be called upon to treat an organ or a region that may be the seat of Koch's bacillus. If there is a region that is invaded by a varied bacterial flora where the presence of Koch's bacillus is frequent, it is the bucco-pharyngeal region. The bacilli develop under normal conditions, and in such quantities that a relatively new theory of dental caries has been created—the parasitic. What we will discuss now is the preference that Koch's bacillus has for the bucco-pharyngeal cavity.

This bacillus is very often found in healthy mouths, especially in those of physicians, dentists, students, nurses, and individuals who come in contact with tuberculous patients. It does not follow that because Koch's bacillus is present in an individual's mouth he is consumptive, or that he has tuberculous lesions. Strauss found it in the nasal fossæ, in the saliva, and in the bucco-pharyngeal mucous membrane of perfectly healthy persons who had come in contact with tuberculous patients or that had lived in an atmosphere infected with pathogenic matter. It is, then, still more certain that we will find it in the mouths of consumptives. Here very often mucous ulcerations develop. These are secondary ulcerations, consequent to a general infection, and are the local manifestations of a tuberculous infection that has taken its seat in the lungs.

There also, however, very often occurs the so-called buccal tuberculosis, which may be in itself a primary infection. It occurs with greater frequency than statistics indicate, because the ulterior

manifestations of phthisis are more important than the first symptoms; also because the primary lesion is forgotten or cured, and the ulceration of the mouth or of the lips is neglected to be considered the beginning of the infection.

It is useless to insist on the importance of diagnosing buccal tuberculosis in order to prescribe an appropriate treatment and to make a reasonable prognosis. It is a question of double importance. It involves the practitioner, who is bound to take prophylactic measures in order to protect himself. It concerns his patient, who has the right to expect from the physician and the dentist the treatment of all the affections of the special region. It concerns all the patients of the same practitioner, who, through his negligence, through faulty antisepsis or sterilization of his instruments, can become contaminated with the tubercular infection.

In 1896 Dr. Bryson Delavan of New York reported numerous observations of buccal tuberculosis. He cited forty-five of tuberculosis of the tongue, twenty-four of the pharynx, twenty-two of the mouth, eight of the palate, five of the nasal cavity, and four of the tonsils. Tuberculosis of the different organs of the mouth (and we consider this as the primary tuberculosis) is not a rare thing. The pathogenesis is like that of every infectious inoculation. Three different conditions are necessary: First, the bacillus. This is found everywhere, especially in the mouth and nasal fossæ, the roughness of the region and cavities of decay being excellent places for the development of microorganisms. Second. It is necessary, in order for the germ to develop, that a morbid and special predisposition should exist. On account of this condition the economy offers only little resistance to the microbic invasion. Third. The two conditions named would not be of any value if the pathogenic microbe failed to penetrate into the depth of the tissues and enter the blood and lymph currents through some break in the continuity of the tissues—through an ulceration or through a wound.

As these three conditions are found together very often, it is easy to understand why bucco-pharyngeal tuberculosis is an easy occurrence. Let us examine some of these localizations which are of especial interest to the dentist. The most frequent is probably *lingual tuberculosis*. Three forms have been described: (1) The tuberculous ulceration, the most frequent kind; (2) the tuberculous gumma, and (3) the lupus lingualis, which are very rare varieties.

Generally the ulcer is located on the tip or sides of the tongue; the borders are irregular, tortuous, and generally do not adhere to the tongue; the bottom is of a yellowish or grayish color, and has a ravined appearance. The contour presents small, round spots of a pale yellow or of a golden yellow color. These spots are known as the "yellow points of Trélat"—true tubercles, which are a sign of the lesion and a pathognomic element of its diagnosis.

Tuberculosis of the *lips* is not of rare occurrence. We do not consider in this group "lupus," which is frequently found. It is a lesion involving the whole face, developing from a small lesion that generally begins at the naso-buccal furrow. In 1897 Dr. Thibierge presented a remarkable case of tuberculosis of the lip. The patient, a man thirty years of age, was a victim of pulmonary tuberculosis.

We have had numerous occasions to observe tuberculous ulcerations in the buccal orifice of phthisics. The difference between tuberculous ulcerations and syphilitic ulcerations is that the syphilitic lesions are found at the sides of the buccal orifice, while the tuberculous lesions prefer the antero-medial portion.

The tuberculous manifestations of the *gums* and of the alveolo-dental border are considered very rare, but they are really not so, many cases having been reported. One of the most important is that in connection with the surgical clinic of Bower. The patient, a man forty-five years of age, had been suffering from ulceration of the alveolar border of the lower jaw. This affection had begun a year before his presentation to the clinic, and had caused the spontaneous exfoliation of several molars and the expulsion of several sequestra. He was also suffering from intense earache, that became more accentuated with mastication, especially at the time of the loss of a tooth. When the patient presented himself to the clinic the alveolar border of the inferior maxilla was deprived of molars on both sides, and was transformed into a groove whose sides were formed by tumefied gums, while the bottom had the appearance of having lost some ulcerative tissue. The explorer could easily reach the denuded jaw. The submaxillary, carotid and maxillary glands were infected and swollen. The apices of the lungs showed sure signs of initial tuberculosis; the bacilli could be found in the sputa. The treatment consisted in thoroughly curetting the morbid focus, followed by antiseptic gargles. A cure was effected after three months, and after a year the condition of the mouth was good.

The author believes that the tuberculosis of the gums can be primitive, and that such is very often the case.

Tuberculosis of the *maxillary bones* is relatively of frequent occurrence. Dr. Starcke and Czerny have observed and reported eight cases. This variety of tuberculosis begins by a hard and diffuse tumefaction of a portion of the bone. This tumefaction is more or less painful. It is never of an acute character. The contraction of the jaws forms the second sign of the disease. After a certain time abscesses are formed. When these are lanced they give passage to a certain quantity of pus, and often to a sequestrum. The abscess terminates by the formation of a fistula, and this process repeats itself, and frequently without provoking very intense pain. The cervical ganglia become tumefied; the tuberculous infection extends itself, invades the entire maxillary bone and the temporo-maxillary articulation, and from these the bones of the cranium become involved. Maxillary tuberculosis can be of alveolo-dental (direct inoculation) or of hematogenic origin; in which latter case it is a secondary localization.

In the majority of cases the patients complain of odontalgia at the level of one of the molar teeth. The cheek is swollen, the breath offensive. If the mouth be examined it is seen that the patient is suffering either from an alveolo-dental periostitis or from an ulcerous stomatitis. The conditions present demand extraction of the tooth. When this is accomplished the pain persists, and the open alveolus forms a focus of chronic suppuration. Little by little the tumefaction extends itself over the entire body of the maxilla; abscesses and fistulæ are formed.

Cases of tuberculous ulcerations of the palate and of the velum palati, of tuberculous perforation of the roof of the mouth, the *bucco-pharyngeal tuberculosis*, are found every once in a while, but they belong to the province of the physician rather than to that of the dentist.

We will conclude with the relation of a personal observation: A girl of eighteen years, whose parents had died from phthisis, was brought to my office. This young patient had been treated in one of the Paris hospitals for a suspected dyspeptic affection, accompanied with aphthous ulcerations, which were supposed to be due to gastric disturbances. She then went to a dental clinic, where the treatment of the oral disturbances was not successful. When I saw

her for the first time she was pale, thin, and complained of gastric troubles, and of acute pains provoked through aphthæ on the gums and on the left side of the tongue. There were three lingual lesions, separated from each other by healthy mucous membrane, occupying the dorsal and inferior portion of the organ. They were of oval shape, with irregular borders, surrounded by yellow spots. The bottom of the ulcer was of a pinkish color. The gingival ulcerations were of very irregular form, but the yellow spots could also be found. The teeth were grooved and in very bad condition. A bacteriological examination revealed the presence of a few bacilli of Koch and numerous streptococci. The patient was very fatigued and emaciated, and was sent into the country and submitted to a hygienic régime and to proper diet. She also frequently used mouth-washes of sodium salicylate. The result of this excellent cure is that the patient to-day, after eight months' treatment, is without any buccal lesions and in an excellent state of general health.

Conclusions.—1. Bucco-pharyngeal tuberculosis is more frequent than is generally believed. It can be primary, arising spontaneously in subjects free from general tuberculous infection, and the lesion remains in the state of local tuberculosis. It can be secondary, occurring periodically in the course of pulmonary tuberculosis, especially in the last period. 2. The localizations of this tuberculosis are very variable. They can reach all the organs of the bucco-pharyngeal region—lips, internal portions of the cheeks, gums, alveolo-dental borders, maxillary bones, tongue, palate and tonsils. 3. The knowledge of this tuberculosis is indispensable to the dentist in order to take the necessary prophylactic measures for his patients and for himself, and to make the early diagnosis of the nature of the ulcer with a view to appropriate treatment. 4. For in cases of primitive bucco-pharyngeal tuberculosis, when the affection is purely local, a rational treatment, general and local combined, is almost always efficacious. A cure is the rule, depending on the earliness of the diagnosis.—*Cosmos, Jan. 1901.*

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TREATING PUTRESCENT ROOT-CANALS AND OPENING FINE AND CONSTRICTED ONES FOR STERILIZATION. By F. T. Hays, D.D.S., Chicago. Driven to exasperation by the use of sulfuric acid for the above-named purpose, I experimented with a view to finding something which would not corrode

every instrument with which it came in contact, and would still act with sufficient rapidity in such cases and insure certainty and expedition.

I have found that nitro-hydrochloric acid, or "aqua regia," does not corrode a steel broach further than to cause a thin coating on the surface, which can be easily removed by a cuttlefish disk. And the same broach may be used to carry the medicament to canals to be left there until termination of the treatment, without any fear that the broach may have been weakened and will break off, as is the case when H_2SO_4 is so used. In the treatment of putrescent root-canals with aqua regia an effervescence is produced almost equal to that caused by hydrogen dioxid. This effervescence assists in carrying out and into the pulp-chamber much of the débris lodged into the canals. At the same time an elimination of free chlorin takes place, which helps to further sterilize the canals and render innocuous any putrescent matter that may remain therein, meanwhile bleaching the tissue and leaving it white after thoroughly drying out. The bleaching effect of the gas enables the operator to better see the canals and more easily treat them.

I have many times opened into a dead pulp, left the canal open a few days to drain and for soreness to subside, and at the next sitting subjected the tooth to the treatment as outlined, sealed it up tightly and left it for one week without any inconvenience to the patient. Rarely do I have to treat a tooth by this method more than once thereafter. I effect a saving of much time to both patient and myself, and I have cleaner and better canals in which to insert a filling than with any other method heretofore described.

As for its use in fine and constricted canals, my advice is to try it and be convinced of the time saved over the old method; besides one does not require a special broach, as is the case with H_2SO_4 .

After using any acid in canals, the residue should be carefully neutralized and the canals dried thoroughly before putting a dressing in them, as this avoids the dilution of medicaments used as a dressing and assists the tissue at the apex to return to normal condition because of aseptic surroundings and absence of fluids irritating to the apical tissue.

My method of procedure is this: Thoroughly exclude the surrounding tissue, preferably by means of dam; if this is not convenient, have the assistant protect the parts with some absorbent

material, thereby excluding saliva and preventing the carrying out over the walls and surfaces of the teeth some of the agent with which you are working, which should always be avoided when working with a corrosive.

Then with a fine, smooth broach, around which have been wound a few threads of cotton, carefully and gradually work the medicament toward the apical end. Use as fine a broach and as little cotton as consistent with the needs of the case, as a broach that tightly fills up the canal acts as a piston, and many times forces septic material through the apical foramen and thereby excludes the possibility of its sterilization by the method outlined; soreness and discomfort, moreover, are sure to follow.

As to any harmful disintegration of tooth-structure, I have never been able to demonstrate that, although watching this matter closely before reporting. But I do not get the material on the tissue except at the opening of canal, as the smallest possible amount is quite sufficient; and by due care it can be kept away from where it might do possible injury.

The same care and certainty is often difficult in the use of sulfuric acid "in any degree of concentration," as with it you can not use the fine broach and cotton medium to carefully place in a fine canal; hence the certainty of its spreading over the floor of the pulp-chamber, there to remain until neutralized at the termination of the acid treatment, and to do more injury than need be the case when carefully following the technique of this method.

Again, I have many times used the method here advocated in the canals of anterior teeth that I intended reaming out for a Logan pin, and have tried to differentiate, in the cutting of the tissue immediately around the canal, that portion in which the acid came in actual contact, but could detect no difference so far as my sense of touch could specialize.

I have not as yet made any extensive laboratory experiments but have used this material freely in roots of freshly extracted teeth, carefully neutralized and dried out, and on splitting open the canals have found them pure and clean, the tissue hard and dense, with noxious odors well dissipated. If by chance the agent should come in contact with the tissue in the apical region I have found nothing more than a persistent tendency to the formation of serum, but have had no trouble from a root filled in this condition if the

canals were perfectly aseptic. Of course I should treat such a case more often than suggested, and try to overcome the tendency. But we sometimes meet such cases from some other cause, and find it quite impossible to check the serumal flow when we are called upon to fill the roots and so terminate the treatment.

As to the medicaments to be used for canal dressing, they should be soothing and antiseptic. I prefer oil of cloves, because it produces slight anesthesia of the parts and aborts the condition described by patients as a drawing sensation which follows the use of astringents, and many times lasts for ten or twelve hours. Much suffering can be caused by the use of powerful deodorants, which mislead the operator in terminating treatment too quickly. I use oil of cloves for final dressings because the odor is easily dissipated by noxious gases and I am not misled, as might be the case with such medicines as thymol and oil of wintergreen. Oil of cassia I have no use for under a sealed dressing.—*Cosmos*, Dec. 1900.

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CHINESE PHYSICIAN. By the Hon. William E. S. Fales. Formerly U. S. and French Consul in Amoy, China. My first acquaintance in the medical profession was Ah Chin. He was about fifty years old, tall, slender and dignified. He belonged to the mandarin class, and his medical knowledge was hereditary, if I may use a bull, his father, grandfather, and other ancestors having been members of the profession. With the curious instinct begotten by ancestor worship, he credited his success in life not to his father, whose assistant he had been, but to his grandfather, who had died before Ah Chin had reached manhood's estate. He had a large practice and enjoyed a professional income of probably twenty-five hundred a year, which is the equivalent of twenty-five thousand dollars in our Western civilization. He was popular and had a deserved reputation for generosity and kindness to the poor.

There were some topics upon which he preserved a smiling silence. These were professional secrets which had come down in his family and which he would transmit inviolate as valuable property to his oldest son, who had already entered upon a successful medical career. The limitations of his mental horizon were very curious to us. In some respects he had wonderful knowledge, while in others he was so ignorant as to arouse ridicule or pity. He was a master of acupuncture and could thrust a needle into almost every part of the

human frame without doing any damage. He knew what the Chinese call the safe points, the dangerous points, and the dead points. He had learned these by practicing for years upon a manikin which was covered with opaque wax, concealing the apertures which every good Chinese surgeon must know. And yet he had very little idea of why one point was safe and another perilous.

He knew there were veins and arteries in the body, but he knew nothing of their location and relation. He knew no more about the osseous system than an average American boy, but he did know considerable about the joints and how to treat dislocations. Of hygiene and sanitation he knew nothing and did not care about them. Outside of his own house, abutting upon the wall and flowing over into his yard, was a pile of filth and garbage whose stench could be perceived a hundred yards away. He was interested in Western medicine, despising its theory and practice of medication, and puzzling over rather than admiring its surgery. He approved of the germ theory, but denied that the microbes were microscopic creatures, holding very vehemently that they were creatures intermediate between worms and snakes, and that they were the causes of every kind of fever. He believed that these snakes or worms laid many eggs which passed from the patient's body through the bowels, the pores, and even the lungs, settled in other bodies, and there hatched and attacked the new surroundings. He was quite successful in respect to several complaints, notably rheumatism, neuralgia, gout, eczema, ulcers, carbuncles and diarrheal complaints.

His methods for rheumatism, neuralgia and gout consisted in the liberal use of hot teas and broths and a relinquishment of all ordinary food. In most of the fluids there was the simple tonic, ginseng; in others there were aperients, apparently impure Epsom salts; one broth contained peppermint leaves, chopped almonds, bay-leaves, honey, blood and wine. So far as I could make out, he drenched the entire gastric system with immense quantities of hot water, washing out the entire body in that way, and relied upon the elements added to the water for medicinal action as well as for nourishment. In treating eczema he distinguished between an inflamed skin from which blood came at points and one from which merely lymph came. To the former he applied a paste made of pitch, peppermint, and some oils, and to the latter a paste made of raw eggs, honey, calcined kaolin, peppermint oil, laudanum and other substances.

After the preparations were applied, the surface was covered with thin brown tissue-paper, this in turn with thick brown paper, and this held in place by narrow strips of white cotton cloth. The heat of the inflammation dried the clay paste, which became quite hard in twenty-four or thirty-six hours. He broke it off by striking it with a little hammer, then applied a new coating to the raw surface. An ordinary eczema he cured in a week, and a severe one in two.

For stomachache, gastric chills, flatulency, indigestion, and most forms of dyspepsia he had a treatment which was truly heroic. The patient lay at full length, and the doctor with his muscular hands pinched the skin of the abdomen from the end of the sternum to the pubic bone, and transversely almost to the backbone. The pinching was done with the thumb and forefinger or between the knuckles of the forefinger and middle finger. It was so powerful that sometimes it would draw or force blood through the pores, and so rapid that it might be compared to playing a piano. In ten minutes, using both hands, he would inflict from three to four hundred pinches. It was more than a rubefacient and counter-irritant. It drew the blood to the surface, so much so that on the second day the body was covered with black and blue crosses and every nerve was excited to a condition of intense activity. I must say that the method, though cruel, had excellent results. There was immediate relief and a very speedy cure. He scarified, as do all Chinese physicians, but did it in moderation. He used aperients in large quantities and preached the unhealthfulness of constipation.

For catarrhal troubles he used warm solutions of astringents rendered aseptic by peppermint and similar oils, and where there was pain, as in nasal catarrh, he often applied an oil into which he had put tincture of opium. For some forms of dyspepsia he used burned paper. The paper was a thick yellow tissue, which when burned left a fluffy black ash that was probably one-half carbon and the rest silica and mineral salts. Occasionally, perhaps always, he wrote talismanic characters with colored pencils on the paper. At first I thought the talisman was merely a melodramatic flourish, but after a while I noticed that he employed different pencils, and that each pencil was made of a substance which, when burned, would exercise a chemical or medicinal influence. The vermilion pencil consisted of red mercury; the brown pencil was red oxid of iron; the white pencil contained carbonates of calcium and magnesium;

another pencil contained some salt of sodium, an impure carbonate if I remember aright. The pencils had blunt points, and in writing a talisman ten or twelve grains of material would be transferred to the paper. When it was burned and diffused in a cup of tea the ingredient would pass into the stomach along with the carbon of the paper.

For sores and ulcers he had salves of various sorts, the active ingredients being peppermint oil, pitch oil, camphor oil, and opium. They were practically a simple antiseptic and disinfectant dressing, always giving relief and generally assisting nature in effecting a prompt recovery. Take him for all in all, Ah Chin seemed to be very much like the poor Leech in "Romeo and Juliet." He had about the same range of simples, the same blind trust in his science, and the same ignorance of the higher science which modern therapeutics has brought into being.—*N. Y. Medical Journal*.

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CASTOR OIL AS A REMEDY FOR NEURALGIA. By Harold N. Moyer, M.D., Chicago. Read before Chicago Academy of Medicine. Three years ago Dr. A. J. Ochsner called my attention to the value of castor oil in the treatment of neuralgia, particularly of the fifth nerve. His results had been brilliant, he having had as many as thirteen consecutive cases that had come for operation, all relieved or greatly improved by the use of castor oil. This method in my hands has been superior to any other treatment.

During the last two years I have treated about fifteen cases of neuralgia by this method, but only seven of these were under observation sufficiently long to enable one to speak definitely of the results of the treatment. Five of these were neuralgias of the facial nerve, and two were typical cases of brachial neuralgia. Both the latter were comparatively recent in development at the time treatment was begun, and one of the cases of facial neuralgia had begun but two weeks before. Of the cases of brachial neuralgia, one had lasted one and the other two weeks. The one of the shorter duration was exceedingly severe, and had been under the care of a competent neuralgist for more than a week. Electricity and other remedies had been employed, but without giving the slightest relief. This patient was given a large dose of castor oil at ten o'clock, and by four the pain in the arm had largely decreased. The following night he rested well, and the next morning the pain had practically

ceased. He took three or four doses of the oil afterwards. There was no return of the pain.

An acute and recent case of neuralgia of the inferior dental nerve was cured in two weeks. The pain began in the inferior dental, and at the end of two weeks had extended to the middle division of the facial nerve. The pain was very severe, but the case was entirely cured after a two weeks' course of castor oil.

The results in acute neuralgias have been, as might be expected, better than those observed in the chronic; but even in the latter only one failure can be charged to the method. A patient with a neuralgia of the third division of the nerve on one side continued the treatment for between two and three weeks without the slightest improvement in the symptoms. However, an examination of the eyes showed mixed astigmatism and a well-marked eye strain.

Another case was that of a man aged thirty-four, who had typical tic douloureux, which began in the left supraorbital branch at seventeen years of age. The pains were distinctly paroxysmal, coming on at periods of from about five minutes to an hour. At the time he came under observation all three branches of the left side were involved, and he came asking for operation, having heard that section of the nerves sometimes improved these cases. The pain had been so severe as to markedly impair his general health, and there had been a loss in weight. The administration of the oil was followed by a prompt improvement of the pain, and while the patient can not be said to have been cured, as the spasm remains and there are occasional twinges of pain, yet he says he is much more comfortable than for years; and if the pain is not more severe than it has been during the past winter he will consider himself quite well.

Another case was that of a man thirty-seven years of age, who had neuralgia which began on the right side of the face and had lasted for five or six years. Three years ago the infraorbital nerve was divulsed. Six months before coming under observation, the disease appeared on the left side of the face, and he came asking for surgical relief. Treatment was begun, and at the end of a week the pain had entirely disappeared, and there has been no return up to the present time. This case was one of the most brilliant in its results, although it was nearly duplicated by a case of supraorbital neuralgia of fifteen years' duration, which was cured by the administration of the first half-dozen doses of the oil.

The oil is administered in the morning before breakfast, and the dose is from one to two ounces. As a rule, patients have little difficulty in taking the larger amount, though in some cases it was difficult to keep this much on the stomach. At first patients were left largely to their own devices as to the methods of taking the oil, but later care was taken in directing the preparation, with a corresponding improvement as to the ease with which it was taken and with the persistence with which they held to the treatment. Castor oil, if kept for some time, and as it is ordinarily found, is quite offensive to most people, but it is very much improved by a thorough washing and the addition of a few drops of the essence of anise to each pint of oil. The most efficient means of administering is in ale—preferably Dogshead or Bass, which contains a large quantity of gas, and which should be poured from the bottle in such a way that the glass contains a large quantity of foam. The oil is poured into the ale, stirred a few times with a spoon, and then may be drunk without tasting the oil. The mixture with the ale forms an emulsion, and there is much less liability of the oil disturbing the stomach. When first administered the oil acts freely on the bowels; but if it is continued daily, its cathartic effect rapidly diminishes, and it is not infrequent for patients to state that they have but a single movement of the bowels after the third or fourth dose.

An interesting speculation might be entered on, as to how castor oil acts in relieving neuralgia. That it is not due to the cathartic action of the drug is, I think, clearly shown by the fact that other cathartics and laxatives are of no value in relieving this condition. The physiologic action of castor oil has not been definitely determined. Butler says that it is a combination of glycerin, fatty acids, and ricinoleic acid. This combination passes the stomach unchanged, and in the presence of the bile and pancreatic juices is broken up into its component parts; sodium ricinoleate is formed, which has marked irritating properties. A very significant observation of Butler's is that he is inclined to attribute anodyne properties to the drug, as he has frequently observed that it acted as a sedative in children, in those cases in which no movement of the bowels was produced. Buchheim was the first to claim that ricinoleic acid was the purgative principle, but this has been questioned, some writers taking the view that the purgative principle of castor oil was due to something dissolved in the oil, and which existed in

very small quantity. Recent experimental work shows that the older opinion of Buchheim is probably correct, and that the cathartic action is to be attributed to the ricinoleic acid. It is probable that other substances are present in castor oil which have not been fully identified, and it is possible that this may have some effect on the sensory nerves.

Discussion.—*Dr. Gustave Fütterer:* The effect of the oil may be due to either one of two possibilities. 1. Castor oil is a powerful irritant, and by producing a hyperemia of the gastrointestinal tract other parts are relieved. It is, in fact, such a powerful irritant that it should not be given in cases in which there is any irritation of the stomach. I have seen very serious results follow its administration under such conditions. There is another point to be taken into consideration—autointoxication. Many years ago I found that fats of a certain density enveloped bacteria, thus preventing their growth and multiplication. If autointoxication is the cause of conditions as were mentioned, then this action of the oil must be considered. Leaving aside a direct antiseptic effect, the conclusion I have arrived at is that certain fats envelop bacteria and mechanically prevent their multiplication. It has always been my opinion that the effect of castor oil was not only purgative, but also mechanical. It envelops bacteria and prevents decomposition in the intestinal canal and consequent autointoxication. The oil in this is better than any other laxative.—*Jour. Am. Med. Assn.*

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FORMALDEHYD. Methylaldehyd, Oxymethylen or Formic Aldehyd, with Most Important Combinations. By P. A. Dubois, Ph.G., San Francisco. Formaldehyd has lately been used extensively as germicide and deodorizer. It is a gas of pungent, penetrating odor; a saturated solution of it has a sharp taste, is colorless, neutral, volatile and miscible with water, alcohol, glycerin, etc. At 21° C. the gas condenses and changes into paraform; ammonia converts it into hexamethyleneamin. It may be made by oxidizing wood alcohol by means of platinum, or by the action of electricity on a mixture of hydrogen and carbon dioxid. Chemically it unites with sulphureted and nitrogenous products of decomposition, forming odorless and innocuous compounds. Gelatin subjected to its action becomes brittle and is readily pulverized. It hardens blood-clots, sputa and animal tissues.

Van Emergen and Sugy show that books and small objects containing germs of diphtheria, tuberculosis, scarlet fever and small-pox are disinfected by 5 c.c. of formaldehyd to the litre of air. Horton found 1 c.c. sufficient to 300 c.c. of air. A one per cent solution deodorizes feces and vessels; a two per cent sterilizes surgical instruments. Walter sterilizes his hands in a three per cent solution, followed by rinsing in alcohol.

As our knowledge of its properties stands at present, it is undoubtedly a good disinfectant, being little inferior to corrosive sublimate, and more effective than carbolic acid. Eminent authorities have experimented with it, and have shown it to be a good surface disinfectant, but not suitable for plague, cholera, sepsis, puerperal fever, typhoid fever, dysentery and erysipelas. Alexander applied it repeatedly to the ear of a rabbit, causing the organ to fall off in ten days.

One per cent injections will preserve human bodies. Internally 66.0 per kilo did not kill guinea pigs, and their urine did not putrefy. Mosso and Paoletti produced convulsions and death by administering 0.50 c.c. to a dog; small animals such as rats and cockroaches were killed by the gas.

Kaiserling's solution for preservation of pathological specimens is as follows:

40 per cent sol. formaldehyd	750
Potassium nitrate	10
Potassium acetate	30
Distilled water	1000

The specimen is kept 24 hours in the liquid, transferred to alcohol 80 per cent for 12 hours, then to alcohol 95 per cent for two hours, and finally placed in equal parts of water and glycerin, to which 30 parts of potassium acetate have been added. If the specimen is kept in the dark it will not change color. The proprietary preparation known as *formalin* is a 40 per cent solution of the gas.

Amyloform is a white colorless powder, made by subjecting starch to the action of formaldehyd, is insoluble in most media, sterilizable and non-poisonous, used as a dusting powder. *Glutol* or *formacoll*, as produced by Schleich, is made by subjecting isinglass to the vapors of formaldehyd; it comes in a coarse powder. *Dextroform* is produced by the action of formaldehyd on dextrin. It is soluble in water and glycerin. A 10 to 20 per cent solution of it is

useful in gonorrhea. *Formaldehyd-tannin-albuminate* is made by subjecting tannin-albuminate to formaldehyd; the idea is to render the compound more resistant to the action of the gastric juices. The product is insoluble in the acid liquids of the stomach, and offers some resistance to the alkaline fluids of the intestines; it is, however, split up into its three constituents in the lower intestines. *Formaldehyd-casein* is an inodorous, tasteless, coarse, yellow powder, and is used as a surgical antiseptic. *Formin*, known by its trade name of *urotropin*, is a combination of formaldehyd and ammonia, and is used to increase excretion of uric acid. *Saliform* is a salicylate of formin, soluble in water and alcohol. *Formolid* is a proprietary mixture. Its formula has not been given. It is said to be antiseptic, germicidal and prophylactic. *Formopyrin* is made by the action of formaldehyd solution on antipyrin solution. White crystals are obtained, insoluble in cold but soluble in hot water, and forming salts with acids. *Formosolin* consists of formaldehyd 0.18 per cent, thymol 0.10 per cent, zinc oxid 34.44 per cent, starch 65.28 per cent. *Geoform* and *creoform* are formed by interaction of guaiacol or creosote, respectively, with formaldehyd. They have no odor, no taste, are non-toxic and non-irritant; soluble in alcohol, ether, benzol, potassium hydrate; insoluble in water and benzol. They are possessed of powerful antiseptic properties. *Eka-iodoform* is iodoform containing .05 per cent of paraformaldehyd, which is said to dissociate in presence of iodoform with formation of gaseous formaldehyd. *Formatol* (composition not given) is a disinfectant dusting powder containing formaldehyd. *Eusformol* is a proprietary antiseptic, containing oil of eucalyptus, oil of wintergreen, thymol, menthol, boric acid, fluid extract of wild indigo and formaldehyd. *Galloformin* is a mixture of gallic acid and formaldehyd; it is unstable, said to yield the gas under the influence of acids or alkalies. It is in hard, opaque needles, soluble with difficulty in water, alcohol, ether and glycerin; insoluble in benzol, olive oil; decomposed by heat. *Glycoformol* is a mixture of formaldehyd and glycerin. *Iodothymoform* or *ido-thymol-formaldehyd* is made by heating thymol with formaldehyd, precipitating with strong hydrochloric acid, washing and dissolving in alcohol, to which a solution of iodine and potassium iodide is added, producing a yellow precipitate, nearly odorless; soluble in alcohol, ether, chloroform, benzol, olive oil; insoluble in water and glycerin. Its melting point being

high it can be sterilized by heat. *Lanofom* is a proprietary ointment containing one per cent of formaldehyd. *Polyformin-insoluble* is made by dissolving resorcin in aqueous solution of formaldehyd and adding excess of ammonia. It is an odorless, colorless, yellowish-brown amorphous powder used as a bactericide. *Polyformin-soluble* is a combination of two molecules of resorcin with one of hexamethylen-tetramin, and occurs in white crystals; soluble in water and alcohol; insoluble in benzol and oils. Used externally in skin diseases; internally as an antiferment and diuretic. *Prologen* is an albuminoid compound, not coagulable by heat; obtained by the action of formaldehyd on serum or egg albumen. It is a dietetic food, and may also be used hypodermically or in the form of enema. *Sterisform chlorid* is composed as follows: Formaldehyd 5, ammonium chlorid 10, pepsin 20, sugar of milk 65. *Sterisform iodid* has the same composition, except that the ammonium chlorid is replaced by ammonium iodid. *Sterisol* is used as an antiseptic in infectious diseases, and has this formula: Formaldehyd 0,520, potassium phosphate 0,322, sodium chlorid 0,672, lactose 2,980, water 95,506. *Tannoform* or *methylen di-tannin* is obtained by the addition of formaldehyd to an aqueous solution of tannin and precipitated with hydrochloric acid. Tannoform is insoluble in water, soluble in alkalies. Used externally in dermatology; internally for intestinal catarrh. *Quinoform*, *querciform*, *quebrachinoform*, *krameroform* are produced by the same process as tannoform on the respective cinchona, oak, quebracho and rhatany tannins. *Tannopin* or *tannon*, is a condensation product of 13 per cent hexamethylen tetramid (urotropin) and 87 per cent tannin. This forms a light brown powder, tasteless and somewhat hygroscopic; insoluble in water, weak acids, alcohol, ether; soluble in weak alkalies. Used in chronic enteritis and typhoid. *Thymoform* is a product of reaction between thymol and formaldehyd; it occurs in a yellowish, tasteless powder with a slight odor of thymol; soluble in ether, alcohol, chloroform, olive oil; insoluble in water, petroleum, glycerin. It is used the same as iodoform and dermatol.—*Pacific Med. Jour.*, Jan. 1901.

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CLEFT PALATE. By E. H. Taylor. The operation is thus described: The patient lying in Rose's position under chloroform, the edges of the cleft are pared freely. Blood is removed by a suction apparatus (figured), and throughout the operation sponges are

dispensed with so far as possible, pressure with finger on bleeding point proving sufficient. A curved incision is now made on each side close to the alveolar margin of the palate, commencing posteriorly inside the last molar and curving round anteriorly to terminate in the cleft, and arranged at the same time in such a way that sufficient tissue is left immediately behind the incisors to hold a suture subsequently. With this incision the posterior palatine artery is retained in the flap. The latter is reflected by means of a rugine, an instrument which enables one to lift the mucoperiosteal flaps very rapidly and without laceration or serious damage. The next step in the operation is to sever the connections between the hard and soft palate on their nasal aspects. This step is much facilitated by turning back the flaps which have been already detached from the hard palate, and a knife or curved scissors may be employed for the purpose. Silk-worm-gut sutures are usually employed. In introducing them it will probably be most convenient to commence behind and come forward. Small curved needles passed with a needle-holder may be used; but, if preferred, a curved needle in a handle may be substituted for them. It is very striking to observe the facility afforded by the mobility of the flaps in carrying out this stage of the operation. At the anterior extremity of the cleft the suture should be passed through the flap from its mucous to its periosteal aspect; the free end of the suture is then carried through the gum, behind the incisors in the reversed direction—viz., from its deep to its superficial aspect. This suture anchors the flap in front during the process of healing. Should it be deemed insufficient an accessory suture passed further out on each side will afford ample security. Difficulty may be experienced in bringing the flaps into apposition at the level of the hard and soft palate, and seeing how unfavorable a high degree of tension is for securing good and rapid union it will be well, following the advice of Dieffenbach, to make an anteroposterior incision in each side, about half an inch in length, at the inner side of the hamular process. The advantages of the operation are thus summarized: 1. It can be performed with greater ease and rapidity than any of the cleft-palate operations with which the author is acquainted. 2. It is not accompanied by troublesome hemorrhage, as no large arterial branch is divided, and whatever hemorrhage does occur may be effectually controlled by digital pressure. 3. The muco-periosteal flaps have their blood-

supply assured. They are raised with the least possible damage; and this is a material advantage when dealing with the delicate and friable tissues of young children. 4. The free range of mobility of the flaps facilitates in a very marked way the introduction of the sutures; more especially is this the case at the anterior extremity of the cleft, which has hitherto been a difficult part to close. 5. Lastly, the operation is well adapted to young children. One of the main difficulties with them is the carrying out of the post-operative details. A skilled nurse can do a great deal to promote a favorable result, and a few days before operation spent in making friends with the little patient will have a telling effect on the subsequent course of events.—*Dublin Jour. of Med. Sc.*

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SYPHILIS: THE TERTIARY STAGE IN DENTAL PRACTICE. By E. A. Litchfield, D.D.S., Wahoo, Neb. A young man presented himself for treatment at my hands. A lateral, the pulp of which had died from a blow upon the tooth some years before, was causing pain. Beyond a small fistula and the inflammation necessarily present there was no symptom of other trouble. The tooth was opened and treated. It was possible to see the patient but once a week. At the next visit the inflammation had subsided and the tooth was apparently in a healthy condition. The canal was filled with chloro-percha, this covered with cement, and the tooth filled with gold. One week later the patient returned with the tooth very loose, the result of a violent inflammation about the root. The tooth was extracted, and from the necrosed appearance of the socket suspicion was aroused, and the patient denied ever having any blood disease. The socket was burred out and treated with sulphuric acid in about sixty per cent aqueous solution.

Before the next visit the patient had the adjoining central extracted, also the cuspid and first bicuspid. He consulted another dentist in the meantime, and acknowledged having had syphilis, the history of which he gave at my next visit. Some four years before he contracted the disease and was thoroughly treated, taking treatment at Hot Springs, besides the iodids for over two years. He was apparently cured, was married, and is now the father of two pretty little girls, neither of whom shows any signs of this disease.

After acknowledging the facts in the case he was given over to his physician, who put him on anti-syphilitic treatment immediately.

In a few days the necrosis ceased spreading and gradually healed, some two months later the membrane having almost entirely healed over. Locally the alveolar process was entirely burred away and the maxilla cauterized with sulphuric acid, the wound being first washed out with peroxid of hydrogen. The patient was given a mouth-wash of salol six per cent in alcohol, one dram of this solution to two ounces of water, and the cavity was daily packed with iodoform gauze. Until the necrosis set in about this abscessed tooth there had never been the least indication of the disease either externally or internally.—*Brief, Jan. 1901.*

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SPONGE GRAFTING IN SURGICAL TREATMENT OF ROOTS OF TEETH. By George Brunton, L.D.S., Leeds, Eng. Read before International Dental Congress at Paris, Aug. 8, 1900. The diagnosis of absorbed or perforated roots, or of roots which are incomplete, may be made by the X-rays or by examination with an instrument such as a nerve bristle with a small hook at the end. This, when it is passed up the root-canal, if the apex is absorbed, will be found to pass through, and if retracted the small hook will catch on the end of the root where absorption has taken place. It is well when making this examination to register the length of the root. This may be done by having a small disk of rubber to slide on the bristle. The distance between the hook and the disk, when adjusted to the gingival margin or the cavity opening, will give the length of the instrument which will be required to insert the sponge-graft.

It is obvious that a foreign substance (such as a root-canal point for filling), though inserted with the greatest care, will not prevent the progress of absorption, but will become an irritant. Hence the need for employment of some substance which is compatible, which will not irritate, and which will enable one to seal the canal perfectly. *Spongia officinalis*, the skeleton of poriferous marine animals from which the gelatinous flesh has been removed, provides a suitable substance to form a graft. The fibrous tissue grows into the fiber of the sponge and forms a perfect natural seal, arrests absorption and prevents irritation, and enables the operator to fill the canal without risk of further trouble. The sponge used in grafting is the finest Turkey, free from sand, thoroughly washed and sterilized in phenate of soda or other suitable sterilizing agent. The root-canal

being rendered clean and free from debris, a small piece of the sponge is with a suitable probe pushed up the canal and through so that it spreads out on the wide apex. The canal is now filled in any way suitable to the case in hand.

A number of cases which have been done since 1888 have been under observation, and no failures have had to be recorded. Here are two: M. C., aged forty, root of upper right first bicuspid perforated on the lingual side by decay; bleeding difficult to control. Plugged perforation with pledget of cotton wool saturated with chloralum; prepared root-canal, and filled upper third of canal with gutta-percha, then inserted sponge-graft (after removing pledget of cotton) and finished lower two-thirds of canal with the usual gutta-percha point. This case has done remarkably well; not the least tenderness and no mark on the gums.

Master C. P., aged eight years. Left lower first permanent molar much decayed; pulp putrid; ends of roots incomplete. Root-canals cleaned and enlarged with drill; mopped out with bichlorid of mercury one-in-one-thousand; sponge-graft inserted; canals filled with gutta-percha points and large amalgam filling in crown at one sitting. The case was done May 3, 1892. It has been examined twice a year since and is in perfect condition.—*Cosmos*, Dec. 1900.

* * *

MASTOIDITIS, A NEW OBJECTIVE TEST. By A. H. Andrews, M.D., Chicago. The use of the tuning-fork and stethoscope to determine the comparative density of the two mastoids furnishes a valuable aid and, so far as I am aware, a new method in the diagnosis of mastoid complications. The test is made by placing a stethoscope with a small bell over the tip of the mastoid, and placing the handle of a vibrating tuning-fork over the antrum. It is found that when the mastoid is filled with pus or granulations, or when it is dense from obliteration of the air-cells, the sound waves are transmitted to the ears of the examiner more distinctly than when the stethoscope and tuning-fork are placed in the same relative position over the opposite or normal mastoid. Care must be used in making test not to stretch the skin between stethoscope and handle of tuning-fork, for then the vibrations are heard better than when the skin is not stretched, even though the distance be less.

The lower border of the middle fossa can be very accurately located by the same method. While the bell of the stethoscope is

upon the mastoid the vibrating fork is moved downward over the squama, and as soon as the upper border of the mastoid is reached the sound becomes much louder. The line indicating the change from cranial cavity to mastoid is usually well defined. When this line is reached a move of an eighth of an inch makes a marked difference in the sound of the fork. The position of the lateral sinus in relation to the mastoid can be determined in the same manner, though with less accuracy.

Since beginning the use of this test I have examined forty cases without mastoid symptoms and have found no perceptible difference in the resonance of the two sides; while in the examination of four cases of undoubted mastoid disease the affected mastoid transmitted the sound waves to the stethoscope with greater force than did the mastoid of the opposite side. One of the mastoid cases was recently operated on and the following description gives the chief points:

Mrs. S., colored, aged 40, gave a history of suppuration of the left ear for fifteen years, with occasional attacks of acute pain in ear and side of head. For three weeks before coming to the clinic she had suffered continuously from a dull pain in the ear and mastoid, which sometimes extended over side of head and as far forward as the eye. Examination showed that the membrana tensa had disappeared. The ossicles could not be seen. A cholesteatomatous mass occupied the attic and upper portion of the cavity of the middle ear. When portions of this mass were removed the surface beneath was covered with granulations. The temperature during her attendance at the clinic varied from normal to 101° F. Deep pressure over the mastoid caused pain. In testing the comparative resonance of the two mastoids I found that when the bell of the stethoscope was placed on the tip of the mastoid with the handle of the tuning-fork over the antrum the resonance of the left side was much greater than that of the right. The time which I could hear the fork on the affected side was thirty seconds and on the normal side sixteen seconds.

A mastoid operation was done. The usual post-auricular incision was made, and the mastoid cortex found to be of ordinary density. The air-cells were small and filled with granulations. Hemorrhage from the mastoid wound was unusually profuse. The cavity was cleared of diseased tissue, the posterior wall of the auditory canal and the outer wall of the attic chiseled away, and the granulations

and cholesteatoma carefully removed from the attic. The facial nerve was found exposed just above the oval window, and sponging of the cavity caused twitching of the left eye-lid and side of the face. A slit was made throughout the entire length of the posterior part of the membranous auditory canal; and the mastoid cavity, the middle ear and the auditory canal were lightly packed, through the meatus, with iodoform gauze. The posterior incision was completely closed with sutures.

The special interest in case is the condition of mastoid in relation to the test with the stethoscope and tuning-fork. The fork I have used in these tests is a C 512, so constructed that it should be heard by the normal ear about thirty-five seconds. The stethoscope has a metal bell five-eighths of an inch in diameter.—*Jour. A. M. A.*

* * *

SPLINT FOR FRACTURED JAW. By H. R. Harbison, D.D.S., San Diego, Cal. Read before Southern California Dental Association. A man seventy-five years of age fell from his wheel, fracturing the lower jaw just back of the second molar on both sides. He wore full upper and lower perfectly-fitting dentures. It was found by placing the plates in position and bringing the jaws together the fractured parts came to place in good shape. I fastened the two plates together in correct articulation with fine silver wire, which I covered with cement. The upper incisors were removed for the passage of food, the teeth were then replaced in the mouth and the fractured jaw carefully put in position—a leather splint was put on, known as the "Hamilton splint."

At the end of two weeks the teeth were taken out, thoroughly cleansed, also the mouth. On the right side union had taken place nicely. On the left, little, if any. All was placed in position again. At the end of the fourth week both sides showed good condition, but the patient said they felt weak. After cleaning the plates and replacing, the bandage was again placed in position and left for two weeks more. At the end of six weeks the bandage was removed and the plates restored to their former position. The old gentleman told me about three weeks ago he could not tell that his jaws were ever broken.—*Pacific Gazette, Jan. 1901.*

TARTAR.—If fifty per cent solution peroxid of hydrogen is prescribed as a mouth wash for several days previous to operating, it will greatly facilitate scaling off heavy deposits of hard tartar.—W. Wood, Jr., in *Dental Hints*.

Letters.

NEW YORK LETTER.

To the Editor of the Digest,

NEW YORK, Feb. 12, 1901.

DEAR EDITOR:—The thirty-fourth anniversary meeting of the New York Odontological Society occurred Jan. 15, with clinics in the afternoon and papers in the evening. All report a most profitable and satisfactory time. Many familiar faces were seen, although some of them have been "Lost to sight, to memory dear" for some time.

Three of the essayists and clinicians were from Chicago. Dr. T. W. Brophy read a paper on "The Surgical Treatment of Cleft Palate," and used the stereopticon to illustrate it. His operations are performed ten days after birth if possible, and out of over 200 cases not one closure of the nostrils has occurred. Dr. Norman W. Kingsley, who is on record in his valuable book, "Oral Deformities," as not advocating surgical interference in such cases, in opening the discussion admitted that Dr. Brophy had brought about valuable results. Drs. F. D. Weisse, R. Ottolengui, L. D. Shepard and others spoke in the highest terms of Dr. Brophy's achievements. The profession may well feel more than ordinary pride that one of its members has attained this high degree of surgical skill.

Dr. A. W. Harlan described the use of papain in digesting the pulp. We see you have published his method in detail in a recent issue, so we will not reiterate.

Dr. J. E. Hinkins' clinic showed that he had hit upon a good method for holding loose teeth firmly in proper position. He ties floss silk about the tooth until the space between it and the next one is filled, then fastens all the parts together with a cement made from celluloid and collodion. There is considerable shrinkage of the cement, so he mixes and applies it thickly. This method will do one thing at least, namely, keep the silk from getting foul; and as this has been heretofore the principal objection against such ligatures, the difficulty seems to be overcome.

Dr. Joseph Head showed his latest achievements in porcelain. For the most part he sticks to old principles, but he showed more beautiful work than ever before, which demonstrates that porcelain

inlays can be made a success by the right operators. He considers the new Hammond furnace excellent for the work, and he is in favor of the new open-muffle furnaces.

Dr. H. W. Gillette, in practice for many years at Newport, has opened a winter office in this city, and takes a great interest in all our society work; better still, he is a most intelligent participant.

The real estate purchased by the late Dr. Evans in 1876 has just been sold at a considerable advance. The heirs have settled for a million dollars, and with the balance the project for a memorial institution in Philadelphia is to be carried out.

The legal status of false teeth seems to have been decided. A landlady recently obtained possession in some way of the artificial teeth of a woman boarder who was delinquent in payments. She immediately brought suit to recover the teeth, and the judge forced the landlady to return them, as he decided that they were a necessity and not a luxury. In one way this was fortunate, for if he had decided against the boarder, not only could false teeth have been confiscated, but glass eyes, artificial limbs and all such substitutes for nature would be endangered.

In speaking last month of the Institute of Stomatology meeting, held at the office of Dr. Dawbarn, we overlooked one case presented. It was where the soft bones of the nose had been completely lost through syphilis. Dr. Dawbarn first moulded in wax a suitable nose and adjusted it to the face. Then he reproduced this wax nose in gutta-percha. Then the skin only was separated from the tissues, starting inside the nose, and lifting it for quite an area. Then the gutta-percha nose was slipped under the skin through the former nasal opening and kept from moving by bandages. Gutta-percha is almost non-irritating, and is borne kindly by all tissues. No stitching is required, and there is not a scar of any kind, so that it is almost impossible to tell that the nose is artificial, especially as natural skin covers it without a break.

Here in this burg we are looking for exciting times next month when the Protective Association and Crown Co. come together for their final—at least, we hope it is the final—battle. It is interesting to us older men to compare the state of the profession now with that of not so many years back, when the old Rubber Company was rampant and we had no Protective Association.

Cordially,

NEW YORK.

The Dental Digest.

PUBLISHED THE TWENTIETH DAY OF EVERY MONTH

At 2231 Prairie Avenue, Chicago,

Where All Communications Should be Addressed.

Editorial.

ARMY DENTAL EXAMINERS APPOINTED.

Since our last issue Surgeon-General Sternberg has selected John S. Marshall of Chicago and Robert T. Oliver of Indianapolis for the first two members of the examining board which shall pick the other twenty-seven candidates. The third member has not as yet been appointed, and although it was universally believed and understood that Dr. Williams Donnally of Washington would be the first one chosen, the surgeon-general has not as yet seen fit to appoint him; in fact, it is reported that Dr. Donnally is not to be favored. Our readers will learn this with much regret, as he did more than any other one man, and probably more than all others put together, to secure passage of the bill. A move has been started to have all prominent dentists of the United States and all dental societies send a petition to Surgeon-General Sternberg and Secretary of War Root, to plead for the appointment of Dr. Donnally. We fear, however, this plan will not avail, as the gentlemen in charge at Washington probably have their own ideas on the matter, and as they have been deluged already with petitions from various candidates for these offices, another one more or less will do little good. It is understood that the other twenty-seven dentists will be chosen, one from as many states, as in this way all suspicion of favoritism can be avoided. In fact, no other scheme seems feasible, as there are, conservatively speaking, several hundred applicants for the few positions.

ANONYMOUS, SO COWARDLY.

In the January, 1900, issue of the DENTAL DIGEST we printed an editorial entitled, "The Profession's Friends—the S. S. White Co. and the International Tooth Crown Co.," in which we made the following statements:

"Our attention has been called to a recent circular sent out by the S. S. White Co., which professes to be an interpretation of the

decision in the recent case of the Crown Co. vs. James Orr Kyle, the defendant in the Crown Co.'s last suit. This document is unfair, tricky and misleading. It is intended to convey the impression that the dentists stand in no danger of litigation from the International Tooth Crown Co., except upon the Low bridge patent, which expired in March, 1898, and that they are in very little danger from even that patent.

"Nothing is further from the truth. The Crown Co. have at least thirty-eight patents, for the most part unexpired, relating to crown and bridge work and other artificial dentures. The settlements that have been made thus far by the Crown Co. with certain members of the Protective Association and the release and license given, relate to fifteen patents only. This bears out our previous statement and confirms the charge of misrepresentation against the S. S. White Co. in their circular.

"From a reading of said communication it would appear that its sole object and intention is to discourage the non-members from uniting with us in the Association, and to intimate to the members that they have been frightened into joining when no danger existed of their being sued.

"The S. S. White Co.'s circular intimates that the whole matter is too trifling for the dentists to take any interest in. We would merely point to the twelve years' litigation which the Protective Association has had with the Crown Co. and with several other patent organizations, and the fact that although this patent has expired for nearly two years the Crown Co. are far more active in the bringing of suits against the dentists for past royalty and license fees than they were before the patent's expiration. No one knows better than the officers of the S. S. White Co. and their attorneys that no more harassing form of litigation can be put upon the dental profession than the numerous suits which are now being brought in various states. The pretended fear of the S. S. White Co. that they or some of their patrons would be sued by the Crown Co. because of the manufacture and use of "the Logan and other porcelain crowns, and the gold cap crowns" sold by them, is not only insincere but ridiculous.

"The action of the Tooth Crown Co., in attempting to intimidate members, and the course taken by their apparent allies, the S. S. White Co., have been so contemptible and misleading, etc.

"The action of the S. S. White Co., in this instance is in strict accordance with their past methods. The trust sees the menace to its interests in having the profession banded together, and while they dare not come out so openly, and through their traveling salesmen misrepresent and belittle the Protective Association as they have done in the past, they adopt a more subtle and contemptible course of warfare against our organization. If the S. S. White Co. think the Protective Association is on the right track, why do they

not come out and say so? Or if they really believe the malicious statements which they have circulated about us, why have they not the courage of their convictions to openly denounce this organization?"

For some reason, best known to themselves, the S. S. White Co. have remained silent under these grave charges, and during the past year have either not cared or dared to attempt to clear themselves. Now, however, we have before us a copy of the *Dental Cosmos* for January, 1901, and on the first four advertising pages is an anonymous communication entitled the "Dental Trust." It is sandwiched in between a subscription blank and the advertisement of a dental chair covered with plush and patents. Although this pitiful whine appears among the S. S. White Co.'s advertisements, there is considerable room for doubt as to its parentage. If the editor of the *Cosmos* wrote it, we should naturally expect to see it among the editorials, and if the S. S. White Co. fathered it, why did they not sign their name? It may of course be inferred that the ad writer of the Company is responsible for its production, but it hardly seems possible that even the S. S. White Co. would answer so serious allegations in this cowardly and underhanded manner. We made certain specific accusations and charges one year ago, and it seems incredible that even at this late day they should be answered anonymously. As chairman of the Dental Protective Association, an organization embracing seven thousand of the leading dentists in this country, any statements made by the editor of this journal will be believed by at least a majority of the profession. Consequently, the S. S. White Co. know that they are still under a cloud. Do they dare to further insult the profession by attempting to clear themselves in this undignified and sneaking manner?

If they are the authors of this anonymous screed, and are not ashamed to so state, or even if we can ascertain definitely that it was printed with the sanction of the officers of the S. S. White Co. and not inserted by their office boy, as might appear at first sight, we shall be glad to discuss in our next issue the statements contained therein.

Notices.

HARVARD ODONTOLOGICAL SOCIETY.

At the annual election of this organization, at Boston, Jan. 31, 1901, the following officers were elected: Pres., J. T. Paul; Rec. Sec., R. T. Moffatt;

Cor. Sec., A. H. Stoddard; Treas., L. F. Bigelow; Ed., H. W. Haley; Ex. Com., R. T. Moffatt, W. P. Cooke, F. T. Taylor.

ODONTOLOGICAL SOCIETY OF CHICAGO.

At the annual meeting of this organization Jan. 15, 1901, the following officers were elected for the year: Pres., L. L. Davis; V. P., J. H. Woolley; Sec. and Treas., E. R. Carpenter.

LATEST DENTAL PATENTS.

- 666,143. Dental bridgework, A. B. Johnson, Ada, Minn.
- 666,718. Fountain Spittoon, H. E. Weber, Canton, O.
- 666,903. Dental Clamp, R. M. Mayes, San Antonio, Cal.
- 667,220. Dental engine, W. G. Hughes, Pittsburg.
- 667,441. Dental mouth prop and mirror, William Hare, Camden, Ill.
- 667,464. Dental tool, C. H. Seeger and N. Dedrick, Manitowoc, Wis.

COMPLIMENTARY DINNER TO DR. S. B. PALMER.

The Fifth District Dental Society of the State of New York is to tender a complimentary dinner to Dr. S. B. Palmer, of Syracuse, N. Y., in honor of the long years of faithful service, both in his office and in behalf of the profession at large. Representative members of the dental fraternity will be present, and the affair promises to be most enjoyable. The dinner is to be given at Syracuse on the evening of April 13, 1901, and an invitation is extended to the profession to be present. Dinner tickets will be issued before April 1 on receipt of \$5. Address the chairman of the committee in charge, Dr. G. B. Beach, 518 S. A. & K. Bldg., Syracuse, N. Y.

G. B. BEACH,	}	Committee.
A. RETTER,		
SHERIDAN SLOCUM,		
G. H. BUTLER,		
J. C. CURTIS,		

MASSACHUSETTS BOARD OF REGISTRATION IN DENTISTRY.

A meeting for the examination of candidates will be held in Boston March 27-29. Candidates who have applied for examination will report to the secretary March 27, at 9:30 a. m., at Tufts College Dental School, 563 Tremont street, and come prepared with rubber-dam, gold and instruments, to demonstrate skill in operative dentistry. Any one who wishes may bring his patient. So far as possible patients will be furnished. The board in every instance selects the cavity to be filled.

The theoretic examination—written—will include operative dentistry, prosthetic dentistry, crown and bridge work, orthodontia, anatomy, histology, surgery, pathology, materia medica, therapeutics, physiology, bacteriology, anesthesia, chemistry and metallurgy, and will be held at Civil Service Rooms, State House, from Thursday, March 28, at 9:30 a. m., until Friday p. m., March 29.

All applications, together with the fee of twenty dollars, must be filed with the secretary of the board on or before March 20, as no application for this meeting will be received after that date. Application blanks may be obtained from the secretary. Candidates who have taken an examination, and failed, who desire to come before the board again at this meeting are not required to fill out a second application blank, but must notify the secretary as above in order to be registered. The fee for third and subsequent examinations is \$5.00.

G. E. MITCHELL, D.D.S., Secretary.

25 Merrimack street, Haverhill, Mass.

CHICAGO DENTAL SOCIETY.

The regular monthly meeting was held at the Schiller Building Feb. 5, 1901, with a goodly number in attendance.

Dr. George W. Cook read the only paper of the evening, same being on "Actinomycosis," and a resume of which follows: The disease was first observed in man by Langbeck in 1845. At first it was thought to attack the jaws of animals, but has since been found in various parts of the body. In 577 cases reported up to three years ago the location of primary lesion was—Head, neck and tongue, 316; thoracic cavity, 131; abdomen, 27; skin, 27. Actinomyces have been found in the heart, brain, ovary, intestines, lungs, mouth, muscles and thyroid glands.

Three cases have come under the observation of the author. In all of them one or more badly decayed teeth had to be removed, which was done with the greatest difficulty and only after cutting the roots away from the alveolar process. A sinus was always found at the end of roots, and pus from it revealed the ray fungus. After operation and curettage the patients were put on potassium iodid and all recovered.

Dr. Cook next discussed the bacteriology of the disease. Many of the moulds resemble bacteria, and some bacillary forms appear, as the ray fungus, etc. This fungus is divided into a great variety of species, which may be due simply to environment, as is often the case with bacteria, where there is a change in culture media, temperature or chemical surroundings. The pathogenesis of bacteria depends upon their food media, and a chemical change may destroy it altogether. Another influence is the condition of the individual in whom the germs may be, for a change in his protoplasm may turn seemingly saprophytic bacteria into disease-producing parasites. All this is true of acid-producing germs, as Dr. Cook was able to grow the so-called acid-proof ray fungus in both acid and alkaline media, sometimes producing acid and sometimes alkali in the food. The fungus grown in saliva of different persons shows considerable variation in its reaction, and this is true of many germs grown in saliva which are almost never found in the mouth, as well as those always present. The most virulent microorganisms lose their pathogenic properties when grown on artificial culture media, because normally they multiply in any life-sustaining solution, but just so soon as the chemical composition of the food media changes, corresponding changes always occur in the growth and power of the germs. All food media contain certain electrolytes—Na, K, Mg, Ca and certain organic acid

and proteid matter, forming the proteid molecule. Germs break up this molecule, liberating the metallic ions, which readily form salt; the bacteria reduce the organic matter. This change brings about a retrograde movement in the life of the microorganism, changing its morphology and virulence, all of which may explain why germs lose their pathogenic power. This is especially true of the ray fungus, which is only briefly virulent.

In the jaws, tongue and neck of man actinomycosis generally appears as an enlargement, causing some disfigurement. Occasionally the primary lesion is a hard, red tubercle or papular formation, somewhat indurated. These papules enlarge, suppuration and necrosis occurring in the central part, together with the formation of suppurating sinus, the center of which may granulate, and repair takes place while new sinuses are progressing at the border. In the necrosed tissue and pus a peculiar granule may appear, in the center of which is a cluster of the ray fungus. In many of the tumors calcific deposits occur. When this disease is found in the mouth or maxilla the infection comes through decayed teeth or where the gum has been disturbed.

In treatment Dr. Cook spoke highly of iodid of potassium, as it is excellent in the removal of chronic tumors, such as syphilitic gummata, pleural exudates, indolent ulcers and such inflammatory conditions as are found in pyorrhea, actinomycosis, etc. Like all electrolytic salts, this drug when taken into the system is broken up by the dialyzing action of the cells into its ions—potassium and iodine. The first unites with some acid radical and passes off as potassium chlorid or carbonate, while the greater part of the iodine is eliminated by the kidneys—some through the saliva and perspiration. Some iodine enters into a loose chemical union with the protoplasm of the cell, forming the iodine proteid compounds. This is especially true of the mucus-secreting glands, which attract iodine more than the other tissues, and it is here that the malignant pathological conditions originate. These compounds break up slowly and liberate free iodine, which explains why it is thrown off from the body months after its administration. This slow liberation of free iodine acts as a mild irritant to the cells causing an increased activity, thus enlarging the food-supply and increasing the power of repair. This irritation increases leucocytosis and cell proliferation, which enhances the cells phagocytic action, causing the elimination of bacteria and other foreign matter. This is the real cause of the absorption of new growths, as syphilitic gummata, etc., and the action is like that of irritants applied to the skin for removal of growth and inflammatory processes. Iodine has also an antiseptic action, but it is only recently that its value in the internal treatment of certain local infectious lesions has been recognized. Seven cases of actinomycosis were recently cured by internal medication. Dr. Cook wished to direct the attention of the profession to general constitutional treatment, even though the trouble seemed to be a local infection.

G. V. Black opened the discussion. He thought actinomycosis rather limited in its action, not especially malignant, and stated that a mixed infection with a pus-producing germ usually rendered the ray fungus non-patho-

genic. He thought, however, that the ray fungus was infectious and needed careful attention.

F. B. Noyes described a recent case, and asked if enlargement of the cervical lymphatic glands was any indication of the disease. Drs. Black and Cook did not regard it as such.

C. J. Drueck, M.D., compared the ray fungus to the tape-worm, as the latter as found in man is not infectious again to man, but must go through another phase of its existence. Diseased tissue has been removed from a man and implanted in the abdomen of a calf, infecting it, but attempts to infect a healthy calf from a diseased calf failed. Actinomycosis was often found on corn and barley, which favors the theory of an existence similar to tape-worm with a life stage in the grain. Dr. Drueck thought the germ was most frequently found in the follicular crypts of the tonsil and in the teeth; that it was chronic and locally malignant; limited to the mouth and not carried by the lymphatics; never found in distant parts of the body, and if found in the lungs it was carried there by aspiration or to the stomach by swallowing. In animals large tumors are formed and the fungus sets up a new inflammation in its neighborhood, but in man the growths degenerate early and do not reach large size, soon breaking down and being easily removed.

Drs. Harlan, Hinkins and others also took part in the discussion, for the most part agreeing with the essayist. In closing the discussion Dr. Cook cautioned the profession not to overlook the gravity of the disease, as the 600 recorded cases are probably a mere fraction of the number which actually occur. This summer he saw a post-mortem where the previous history indicated tuberculosis, but dissection proved actinomycosis to be the cause of trouble. The lung tissue was completely consolidated and the lung alveoli filled with the ray fungus. In many cases of this disease there might be no suppuration, yet the fungus could force its way through the tissue, setting up only a chronic inflammatory process without any decided breaking down. There is no evidence that spontaneous recovery will take place.

News Summary.

LEWIS BUFFETT, a dentist at Easton, Md., died Jan. 27, 1901.

A. H. MARSH, a dentist at Britton, S. Dak., died Jan. 17, 1901.

LEROY SNOWDEN, a dentist at Peoria, Ill., was married Feb. 6, 1901.

H. CLAGETT, 94 years old, a dentist at Kansas City, died Jan. 22, 1901.

W. D. PORTER, a dentist at Providence, R. I., died Jan. 19, 1901, from pneumonia.

DAVID C. PRICE, 73 years old, and a dentist at St. Paul since 1854, died Jan. 12, 1901.

FT WAYNE (IND.) DENTAL ASSOCIATION elected the following officers Jan. 10, 1901: Pres., J. M. Rosenthal; Sec., J. S. McCurdy; Treas., R. S. Viberg.

R. D. SEALS, a retired dentist at Fort Smith, Ark., died Jan. 18, 1901, from Bright's disease.

L. KLOCK, 60 years old, and for many years a dentist at Fonda, N. Y., died Feb. 6, 1901.

J. W. HOOKMAN, 55 years old, a dentist at Davis, W. Va., committed suicide Feb. 5, 1901.

J. M. SILVIS, 25 years old, a dentist at Rock Island, Ill., died of typhoid fever Feb. 6, 1901.

H. F. GERHART, 74 years old, and for fifty years a dentist at Lewisburg, Pa., died Jan. 20, 1901.

JULIUS DIENELT, 73 years old, and for many years a dentist at Alexandria, Va., died Feb. 10, 1901.

HIRAM BENEDICT, 85 years old, and for many years a dentist of Detroit, died in Chicago, Jan. 15, 1901.

JOHN HELTINGS, a dentist at Philadelphia, died Jan. 21, 1901. His will gives a good share of his estate to his fiancée

WISH AND RESULT.—In medicine, too, the wish may be father of the thought, but the result may be a miscarriage.—*Factotum*.

TOLEDO (O.) DENTAL SOCIETY Jan. 11, 1901, elected the following officers: Pres., L. F. Canfield; V. P., V. S. Graves; Sec., A. J. Walfert.

WRONG TOOTH AGAIN PULLED.—A woman at Cincinnati has sued a dental parlor for \$500 for pulling a sound tooth instead of a decayed one.

WHERE IGNORANCE IS BLISS.—If you tell a bachelor he does not understand women he smiles mysteriously, but the married man knows it is no joke.

EXTRACTION CAUSES DEATH.—A woman in West Virginia, 38 years old, died Jan. 31, 1901, in convulsions one minute after a tooth was extracted.

C. L. TUCKER, a prominent dentist at Sweetwater, Tenn., has been acquitted and cleared of the charge of murder brought against him last summer.

LIMA (O.) DENTAL SOCIETY elected the following officers Feb. 4, 1901: Pres., Geo. Hall; V. P., R. F. Bennett; Sec., Dr. Gray; Treas., G. H. Irvin.

BLOOD-POISONING FROM EXTRACTION.—A young woman in Iowa and a man in Ohio died last month from blood-poisoning, the result of having teeth extracted.

MUNIFICENT.—The selectmen of a county in England have decided to pay twelve cents a quarter to have the teeth of the school children attended to by a dentist.

JOHN YOUNG, 29 years old, a dentist at Smith's Falls, Ont., was killed Jan. 17, 1901, by an electric shock from the light in his room which he touched accidentally.

SIOUX CITY (IA.) DENTAL SOCIETY held its annual election of officers Jan. 21, 1901, with the following result: Pres., T. A. Rose; V. P., A. S. Wasson; Sec. and Treas., A. Solvsberg; Ex. Board, E. F. Powell, S. K. Johnson, E. F. McCartney.

E. L. REED, 28 years old, a dentist at St. Louis, was probably fatally injured Jan. 17, 1901, by falling from the roof of his house, where he had gone to bring in some rugs.

TRI-CITY (IOWA AND NEBRASKA) DENTAL SOCIETY elected the following officers Jan. 8, 1901: Pres., H. Foster; V. P., J. C. Whinnery; Sec., J. C. Deetkin; Treas., J. H. Wallace.

CONCEITED.—"Bliffkins seems to be a pretty self-confident sort of a fellow."
"Self-confident? Why, he's got more confidence in himself than a woman has in her family physician."—*Puck*.

RELIGIOUS METAPHORS.—"Only a little while ago she was claiming she had been born again, but now she is as cross and hateful as ever!" "Well, perhaps she is teething again, now."—*Puck*.

VERBAL CONTRACTS WON'T HOLD.—A judge at Seattle, Wash., has decided that where a dentist fails to pass the examination of the state board the board can not give him permission to practice.

ACHING VOID.—Dr. Blank has opened dental parlors here. A good dentist will fill a long-felt want and many a cavity in this town, and we trust he will get lots of them to fill.—*Malvern (O.) Newspaper*.

PROSECUTOR FOR EACH COUNTY.—Instead of having the state board prosecute dental quacks, New Jersey has decided to make this work the duty of a special committee, consisting of one member for each county.

BROKEN JAW WORTH \$10,000.—A woman in New York has sued her dentist for this amount, claiming she has sustained this much damage as the result of having her jaw broken while the dentist was pulling a tooth.

THIRD DENTITION AGAIN.—This time it is a man 78 years old in Iowa, and a woman 85 years old in New Jersey who are cutting a third set of teeth. There seems to be an epidemic of this practice among newspaper editors.

CONSERVATOR NEEDED.—A young woman near Kankakee, Ill., traded a valuable farm for the New York Dental Parlors. Her relatives, however, recovered her property, and will now ask for the appointment of a conservator.

PERSISTENT.—A dentist in New York City was convicted of practicing dentistry illegally last November and fined \$50. Notwithstanding this he resumed business and is now held in \$1,000 bail on trial for the same charge.

READING (PA.) DENTAL SOCIETY at its third annual meeting Jan. 3, 1901, elected the following officers: Pres., S. E. Tate; V. P., E. H. Bohn; Sec., C. R. Scholl; Treas., E. Tate. Ex. Com., W. D. DeLong, H. W. Bohn, C. V. Kratzer.

TRUED UP CARBORUNDUM STONES.—Dr. A. H. Hinkler of San Francisco recommends the following method: "Mount stone on mandrel; place mandrel across a small mitre-shaped box about one inch wide and notched near end to receive mandrel. Bring the stone in contact with edge of medium or coarse grit stone on lathe, preferably an electric lathe. The result will astonish you. A stone nearly triangular-shaped can be trued in a few seconds."—*Items*.

DELAWARE COUNTY (PA.) DENTAL SOCIETY at its annual meeting Feb. 2, 1901, elected the following officers: Pres., H. C. McCowan; V. P., F. M. Smith; Treas., H. L. Smedley; Sec., J. H. Campbell; Ex. Com., R. M. Scott, S. B. Luckie, W. Kassab.

ALLEGANY COUNTY (N. Y.) DENTAL SOCIETY at its annual meeting Jan. 9, 1901, elected the following officers: Pres., P. D. Greene; V. P., J. F. Sortore; Sec., W. W. Coon; Treas., James Warden. Ex. Com., G. Whipple, L. E. Wiles, William Sprague.

TO MAKE PLASTER MORE AGREEABLE FOR PATIENTS.—Several drops of oil of wintergreen added to dental plaster makes it more pleasant for impressions. In preparing it drop several drops on about six quarts of dental plaster, work it well and sift it into the can.—*Jacob Senty*.

STUDENTS TO BE PROSECUTED.—Complaint has been made to the Maryland State Board of Dental Examiners that students were violating the state laws by doing dental work at their homes before they had graduated, and the board expects to take the matter up vigorously.

BARBER WOULDN'T DO.—A man in Chicago suffering from toothache took a few drinks to brace him for the ordeal and then started out in search of a dentist. He landed in a barber's chair, and had to be put out of the shop by main force, as he insisted he was in the right place.

PEN AS VULCANITE TRIMMER.—The side points of a broken steel pen are very useful for clearing out vulcanite from between the necks of teeth. They are fine enough to enter the narrowest spaces, in which the most delicate cuts can be made with them.—*Ash's Quar. Cir.*

DANGER IN PLUGGING THE NARES front and back, for bleeding. It has caused abscess of the maxillary sinus as well as general sepsis of the narium. It is better to cauterize the affected parts. Gelatin injections (sterilized or antisepticized) are also very efficient.—*Med. Council*.

ACETYLENE GAS DANGEROUS.—A dentist's office at Derry, N. H., was wrecked recently by an explosion of acetylene gas. A generator was used to provide extra lights, and in some way it was left open, so that the office filled and when a match was lighted the gas exploded.

ASSISTANT INDICTED.—The grand jury has indicted the woman assistant of a dentist in Minneapolis on the charge of practicing dentistry without a license. She and the dentist claim that she has simply done the work which the office girl of any dentist is expected to carry out.

SOCIETY OF DENTAL SCIENCE.—An organization of this name was recently started in St. Louis, and the following officers were elected: Pres., A. H. Fuller; V. P., M. R. Windhorst; Sec. and Treas., Emma Eames Chase; Board of Censors, E. H. Angle, J. H. Kennerly, R. Summa.

EDITORS AND DENTISTS AT OUTS.—The dentists of York, Pa., have decided to stop advertising in the newspapers of that town, all but one of them signing an agreement to that effect. In return the editors have published resolutions in their papers that they will have no more dental work done.

"OUTCH!"—It is rumored that the mother of "Christian Science" lately availed herself of the services of a dentist, and that while she was in the chair she exclaimed "Outch!" Her disciples may interpret that exclamation as one of triumph at the demonstration that she felt no pain.—*N. Y. Med. Jour.*

SUNDAY WORK BARRED.—A photographer at New Haven, Conn., who has been obliged to close his studio on Sunday, will endeavor to have all dental offices also closed on that day. He claims having teeth filled is just as much a luxury as having pictures taken. He evidently never had the toothache.

SOUTHERN DENTAL SOCIETY OF NEW JERSEY.—At the annual meeting of this society held last month the following officers were elected: Pres., O. E. Peck; V. P., C. P. Tuttle; Cor. Sec., T. V. Smith, Jr.; Rec. Sec., A. K. Wood; Treas., Mary A. Morrison; Ex. Com., A. Irwin, J. E. Duffield, J. G. Halsey, E. E. Bower, W. A. Jaquette, A. B. De Wees.

STATE DENTIST FOR CALIFORNIA.—A novel bill has been introduced in that state to create the office of "State Dentist for the Insane Asylums." His duties shall be to visit the asylums once a month or oftener and to alleviate the dental sufferings of the inmates. The salary is fixed at \$300 a year with traveling expenses.

MOLASSES CANDY HARD ON TEETH.—A man at Dover, N. H., was eating molasses candy and dislodged his set of false teeth, which in his excitement he swallowed. The teeth were removed after his stomach had been cut open, and he bids fair to recover. A young man at Joliet, died Jan. 23, 1901, after a short illness caused by swallowing his false teeth.

FUNNY FELLOWS.—Customer (to drug clerk): "Have you any cough drops?"

Clerk (inclined to be funny): "Yes, sir; to keep you from a-coffin."

Customer: "Oh, very funny; I never cinnamon-like you. What do they sulphur?"

CHROMIC ACID FOR BUCCAL LESIONS.—Jarre announces that local applications of chromic acid promptly cure all inflammatory and ulcerative lesions of the buccal mucous membrane. It should be applied in a concentrated solution and rinsed off at once to restrict its action to the superficial tissues.—*Int. Med. Congress.*

MISAPPLIED.—He found his hair was leaving him at the top of his head and took his barber to task about it. "You sold me two bottles of stuff to make the hair grow—" "It is very strange it won't grow again," said the barber; "I can't understand it." "Look here," said the man, "I don't mind drinking another bottle, but this must be the last."

YE "GENERAL" PRACTITIONER IN YE OLDEN TIME.—The following advertisement is taken from a newspaper of Shakespeare's time: "WANTED.—In a family who have had bad health, a sober, steady person in the capacity of doctor, surgeon and man-midwife. He must occasionally act as butler and dress hair and wigs. He will be required sometimes to read prayers, and preach a sermon every Sunday. A good salary will be given." If the doctor didn't get his pay he could take his revenge each Sunday.—*Factotum.*

DEGREES FROM BOGUS COLLEGES WON'T PASS.—A graduate of the Independent Medical College was fined \$80 in Detroit recently for practicing medicine without a license. A dentist in Berlin, Germany, claiming to have a doctor's title in dentistry from the "Academy of Illinois," has been compelled by the police to remove his title from his sign, on the ground that his "Alma Mater" was a fraud.

DIPLOMA MILL FRAUD ORDER.—The postal authorities at Washington have issued a fraud order to stop the mail of James Armstrong, or any modification of that name; the Health University of Chicago, the Independent Medical College of Chicago, etc., etc. It will be remembered that James Armstrong, the president of this institution with many names, was recently sent to jail and fined for using the mails to defraud.

INDIANA DENTAL LAW ATTACKED.—A man at Marion, Ind., has taken an appeal from a judgment convicting him of practicing dentistry without a license, and has filed it in the Supreme Court. He claims that the law creating the State Board is unconstitutional, in that it provides for the appointment of three members by the State Dental Association, thus giving the power of appointment to a legislative office to private individuals.

BRACHIAL NEUROSIS FROM DISEASED TOOTH.—F. Hesse. A tooth which has been filled six years before was not particularly painful and appeared sound, but both jaws were tender and violent pains radiated through the shoulder, breast and arm, with paralytic symptoms. Extraction of the tooth, which proved to have a necrosed pulp, cured the neurosis in the cervical and brachial plexuses which had resisted all treatment for a year.—*Jour. A. M. A.*

ANCIENT DENTIST'S BILL.—The *Atlantic Monthly* contains the following exact copy, saving names, of a bill found among the papers of a venerable friend.

John Smith, Esq.

To Charles Robinson, Dr.

May 26, 1826. To one piece of dental statuary, with six flukes and seven points, fitted nicely to the anterior inferior processes of the maxilla superior, and warranted three years, (provided the dental Radices are capable of retaining the pivots) for twenty-one dollars.

LAY COMMENT ON PATIENT'S INGRATITUDE.—A physician was recently stamped to death in Oklahoma by an ex-patient from whom he was trying to collect a bill for medical attendance. As a lay journal remarks, this appears "to be only a little more exaggerated example of the ingratitude which is manifested every day by a world in which billions of people are very quick to call physicians and very slow to pay them." It is refreshing to note this comment, indicating as it does a correct appreciation of facts in a quarter where it is not always looked for.—*Jour. A. M. A.*

IMPRESSION OF MOUTH WITH VERY HIGH VAULT.—A flat piece of copper or German silver plate, shaped like the outline of the letter U, and of size to approximately fit against the sides of the vault some distance below its deepest portion, and to which is affixed a removable handle of heavy copper wire bent at right angles, is used to carry a body of plaster to the high, inac-

cessible part of the palate. When the plaster has hardened the handle is withdrawn, leaving the plate and plaster in position; the major part of the impression is then taken in the usual way, and the complete impression, in two pieces, removed and fitted together out of the mouth.—*Dr. Tomasku, Dental Record.*

RESINOL DERMATITIS.—Resinol is a proprietary or rather secret remedy used for all sorts of cutaneous diseases and extensively sold. Its effects, however, are sometimes unfortunate, as shown by Hiedingsfeld's paper. He reports three cases of dermatitis traced by him to the use of this application and concludes that resinol "possesses dangerous antiseptic and anodyne properties which under favorable circumstances, be it a special idiosyncrasy of the patient or impaired vitality of the tissues, are capable of inducing severe dermatitis, if not actual necrosis of the cutis, and obtunding the sensibilities to such a degree that the habit is formed so strong in nature as to cause its constant and exclusive use."—*Jour. A. M. A.*

BLACK TONGUE.—A new case of this rare malady is reported by J. Maraval, whose patient was a man aged forty-two years, and an inveterate smoker. For two months he had complained of pharyngeal dysesthesia, discomfort in the movements of the tongue, sensation in swallowing as of a foreign body, and abundant salivation. Examination showed a brownish-yellow patch in the region of the circumvallate papillæ which could be peeled off in threads, and which under the microscope seemed to be made up of imbricated epithelium surrounding a central axis. The area of implantation was thoroughly curetted and a solution of zinc chlorid 1:20 applied. He was seen six months later, with the same condition. He had abstained from tobacco for four months after the curetting, during which time he remained well, but on resuming smoking deposit reappeared.—*Revue Hebdomadaire de Laryngologie*. No. 36, 1900.

OUR RACE FOR MONEY.—Europeans are wise enough to rest from business cares after reaching middle life. "If it is not true that we Americans regard money-making as the work for which life was given to us, why, when we have millions, do we go on struggling to make more millions—and more?" writes "An American Mother," in the January *Ladies' Home Journal*. "It is not so with the older races. The London tradesman at middle age shuts his shop, buys an acre in the suburbs and lives on a small income or spends the rest of his life in losing it in poultry or fancy gardening. The German or Frenchman seldom works when past sixty. He gives his last years to some study or hobby—music, a microscope, or it may be dominoes. You meet him and his wife, jolly, shrewd, intelligent, jogging all over Europe, Baedeker in hand. They tell you they 'have a curiosity to see this fine world before they go out of it.'"

ANGINA LUDOVICI.—By J. T. Fox, M. R. C. S. The author reports a case of the above-mentioned affection occurring in a boy aged fifteen years, following exposure. Onset sudden. The whole submaxillary region seemed involved in a tender, elastic, resistant swelling, almost symmetrical, similar to that of mumps, but the parotids were not affected. On the third day, the floor of the mouth was coated with a thick, white, false membrane. The

swelling of the neck localized itself on the left side, and on the seventh day suppuration took place. The pus escaped by an incision in the floor of the mouth near the cuspid tooth. Examination of the pus showed many micro-organisms, especially staphylococci and streptococci. Convalescence was established in a fortnight. This disease is an infection of the thick layer of loose connective tissue which fills in the space between the symphysis of the jaw and the muscles of the floor of the mouth. The clinical manifestations and pathological appearances so nearly resemble erysipelas that in an active surgical hospital these cases should be isolated.—*Scottish Med. and Surg. Jour.*

METHYLENE BLUE AS AN ANALGESIC.—Klemperer (*British Med. Jour.* Nov. 10, 1900) treated twenty-seven cases of sciatica. In eight he failed; in six pain disappeared in five days; in thirteen the sciatica continued for several weeks, but pains were less frequent and patients could sleep. Three to six capsules containing 0.45 gram (about 7 grains) were given daily. Slight gastric disturbances occurred; pain during micturition was easily annulled by adding a little nutmeg to each dose. The medicament is very useful in tabes, neuralgia, and myalgia in diminishing the pains. It is best to commence with 0.25 gram (4 grains) twice a day, and very gradually increase to one gram (15½ grains) or more. The substance must be absolutely pure, otherwise gastric, toxic, and diarrhetic troubles will follow. It should be administered in well-made cachets, to avoid coloration of the oral cavity. The patient should be warned of change of color of urine, and that slight vesical spasm and dysuria may occur. The remedy causes at first a numbness, passing gradually into analgesia; its action is rapid, but of not long duration. Hence it is necessary to continue the medication whilst any pain is felt. It is claimed that in excessive doses it does not cause the depression, etc., of increased amounts of the ordinary analgesics, and is worthy of extended use.

CHLORID OF ETHYL AS A GENERAL ANESTHETIC.—Pallosson (*Canadian Practitioner*) recalls the fact that two dentists using ethyl chlorid upon the gums as a local anesthetic noticed that it produced a general anesthetic effect. Von Haker used it in surgical operations. To obtain anesthesia a special apparatus is necessary, consisting of a mask fitting closely to the face by a rubber pad and connected with a metal reservoir containing five to six cubic centimeters of ethyl chlorid. Anesthesia is produced in from fifteen to twenty-five respirations, between a minute and a minute and a half. For an operation which only lasts a few minutes it is perfect. It has been even possible with ethyl chlorid alone to prolong anesthesia to thirty or even fifty minutes, but for anesthesia for a longer period of time Pallosson prefers to substitute the ethyl cone for the ethyl chlorid mask after anesthesia is once produced. Disagreeable symptoms at the commencement of ether anesthesia are thus avoided and time saved. The anesthesia resembles that produced by nitrous oxid, and if the time during which the patient is under its influence is short, such as in opening an abscess or extracting a tooth, consciousness returns almost immediately, and there are no disagreeable after-symptoms nor nausea.

ANCIENT AND MODERN GRIP.—It seems to have been the universal belief, whenever a new epidemic of grip swept over the country or over the world, that the disease itself was new. *The Spectator*, for example, speaks of the disease as being not only not of recent origin, but as extending so far back as 1837. *The British Medical Journal* shows that epidemics of the disease not only broke out so long as fifty years ago, but that they occurred at least seven hundred years ago, the Handbook of Hirsch listing the epidemics from 1173 to 1874 in ten pages. In 1427 it was called in Italy the *mure* or *murre*; in 1510, in all Europe, it was named *cocoluche*; in 1563 the English termed it the *new acquaintance*, and also the *catarrhal fever*; in 1675 it was called *epidemic cough*, while still later Huxham named it *feveret*. In our own time the belief is gaining ground that not only influenza, but also the "common cold," if not due to a common germ, are at least due to different germs. The seriousness of both diseases is being better recognized, and hardly any discovery is more needed than that of the microorganisms to which directly and indirectly so much sickness is due.—*Phila. Med. Jour.*

ACUTE ORAL INFLAMMATION.—The records of the Boston City Hospital for the severer forms of mouth disease are analyzed by Munro, including twenty-nine cases of ulcerative stomatitis chiefly treated in successful cases by washes containing myrrh, chlorate of potash, permanganate of potash and hydrogen peroxid, in addition to a vigorous and supporting diet. In twenty-eight cases of acute glossitis all but five were in males about 30 years of age. The causes were sometimes very obscure and swelling very rapid. In most cases the swelling increased until it almost filled the oral cavity. The history of the cases impressed him with the fact that the phlegmonous type is much severer than the abscess type. In some cases it was difficult to distinguish between true glossitis and Ludwig's angina. The two conditions may co-exist or the disease may start as a cellulitis of the floor of the mouth and extend to the tongue. Only nine cases of Ludwig's angina were recorded, one fatal. The clinical picture is very characteristic; a brawny fullness beneath the chin, an elevation of the floor of the mouth to the level of the edge of the teeth, pushing the tongue upward and backward, and in some cases a cellulitis extending in various directions as far as the shoulder or chest. In all these cases of oral disease the treatment must be vigorous, if it is severe. Where immediate operation for the discharge of the pus or blood is not required, medical treatment must be energetic. Catharsis, abundant food, rest, cleansing antiseptic washes and large hot poultices to the neck and chest will often abort a case that threatens to become rapidly serious. Where there is doubt, however, or delay would seem dangerous, free incision is advisable, whether pus is present or not. In glossitis, unless there is a well defined, localized collection of pus, incision is best made in the dorsum on the right side of the median line. In angina cases the incision should be made in most instances in the median line below the chin, as from this each lateral space can be easily explored with a blunt instrument until the small focus of pus, if present, is found. These cases are frequently distressing and the condition is grave, but under good treatment they are of brief duration and without sequelæ as a rule.—*Jour. A. M. A.*

CONTENTS.

ORIGINAL CONTRIBUTIONS—

Typal Contact of Natural Teeth,
Artificial Dentures; Full Sets; Should
They Fit?

Thermal Conditions as Related to Porosity
and Absorption of Oxyphosphate Cements,
German Dental Miscellany.
Abscess of Antrum,
Dear Illinois, To Thee, [Poem],

By L. P. LEONARD.....79

By E. J. PERRY.....83

By E. J. EISEN.....88

By B. J. CIGRAND.....92

By C. S. BRADLEY.....94

By GARRETT NEWKIRK.....90

DIGESTS—Education and Examination of Examiners, 101. Fetid Breath, 101. Regulating
Device, 102. Mouth Breathing and Its Relation to Diseases of Throat, etc., 103. To Quiet
Nervous Patients Without Anodynes, 104. Saliva Analysis as an Aid in Diagnosis of
Diathetic Diseases and Gingivo-Dental Changes, 105. Chemical Aspects of Neurosis, 110.
Buccal and Dental Tuberculosis, 116. Treating Putrescent Root-Canals and Opening
Fine and Constricted Ones for Sterilization, 120. Chinese Physician, 123. Castor Oil as
a Remedy for Neuralgia, 126. Formaldehyd, 129. Cleft Palate, 132. Syphilis, The
Tertiary Stage in Dental Practice, 134. Sponge Grafting in Surgical Treatment of Roots
of Teeth, 135. Mastoiditis, a New Objective Test, 136. Splint for Fractured Jaw, 138.

LETTERS—New York Letter.....#139

EDITORIAL—Army Dental Examiners.....141

Anonymous, So Cowardly.....141

NOTICES.....145

NEWS SUMMARY.....147

INDEX TO ADVERTISEMENTS.

	PAGE		PAGE
Allen, A. B.—Clamp.....	33	Illinois Medical College.....	55
American Hard Rubber Co.....	48	Illinois School of Dentistry.....	54
Angle, Dr. E. H.—School.....	53	Kress & Owen—Glyco-Thymoline, Cover page	
Antidolor Mfg. Co.—Anesthetic.....	34	Lambert Pharmacal Co.—Listerine.....	1
Baltimore College of Dental Surgery.....	59	Lowry, Dr. H. S.—Crowning Outfit.....	45
Berry Mfg. Co.—Crowning Outfit.....	47	McDaniel, L.—Dentist's Office Coats.....	31
Birmingham Dental College.....	58	McKesson & Robbins.....Cover page	3
Canton Surgical and Dental Chair Co.....	26	Manhattan Dental Co.—Plate Stiffeners.....	30
Chicago College Dental Surgery.....	62-63	Martyn, H. S. Co.—Crown Machine.....	27
Clark, A. C. & Co.—Dental Furnishings.....	44	Mason, L. J. & Co.—Electric Outfit.....	35
Cleveland D. M. Co.—Cement.....	51	Meister, C. & Co.—Matrices.....	26
Dee, Thos. J. & Co.—Refiners.....	39	Minn. Univ.—Coll. of Dentistry.....	55
Dentacura Co.—Tooth Paste.....	2	Montezuma Plantation.....	28
Detroit Dental Mfg. Co.—Specialties.....	42-43	Morgan-Maxfield—Disk Mandrel.....	23
Dental Protective Supply Co.—		Morgan, Hastings & Co.—Gold Foil, etc.....	50
Adjustable Slip-Joint.....	16	Morrison, J. H.—Crown Outfit.....	26
Angle Attachment.....	15	Munson, C. W.—Teeth.....	46
Ductile Alloy.....	10	Munn & Co.—Patents.....	20
Fellowship Alloy.....	6, 17	Mutual Dental Supply Co.....	52
Fellowship Burs.....	11	New York College of Dentistry.....	57
Fellowship Teeth.....	Cover	New York Dental School.....	54
Fellowship Broaches.....	9	Northwestern Univ.—Dental Dept.....	60
Fellowship Dental Engine.....	12	Oakland Chem. Co.—Hydrogen Dioxide.....	3
Fellowship Handpiece.....	18, 18a	Odontunder—Anesthetic.....	82
Fellowship Crowns.....	7	Ohio College of Dental Surgery.....	58
Fellowship Scale.....	18b	Palisade Mfg. Co.—Borolyptol.....	5
Mouth Mirrors.....	13	Penna. College of Dental Surgery.....	61
Nitrous Oxid Gas.....	19	Philadelphia Dental College.....	55
Repair Work.....	8	Philadelphia Optical College.....	20
Rubber-Dam.....	14	Phillips, Chas. H. Co.....Cover page	
Second-Hand Engines.....	20	Robinson, W. H.—Bristle Discs.....	22
Denver Univ.—Dental Dept.....	56	Russell Electric Mallet Co.....	24
Douthitt, J. F.—Tapestries.....	38	Sanitol Co.—Sanitol.....	4
Elliott, W. V.—Cement Syringe.....	30	Scharmann, G.—Paste.....	33
Field, Eugene, Poems.....	20	Schering & Glatz—Eucain.....	49
Gesswein, F. W. Co.—Ruby Crystal.....	49	Sims' Hyd. Eng. Co.—Motor.....	29
Gilbert, S. E.—Specialties.....	41	Smith, D. H.—Obtunding Paste.....	30
Goldsmith Bros.—Refiners.....	64	Stutenroth, C. W.—Anesthetic.....	46
Goodrich, B. F. Co.—Rubber.....	31	Terraplastica Mfg. Co.—Specialties.....	40
Howard, C. T.—Strips.....	30	Tschirner D. S. Co.—Specialties.....	37
Harvard University—Dental Dept.....	55	Twist, Dr. J. F.—Crowning Outfit.....	35
Hammond, John F.—Furnace.....	34	Vegetol Co.—Vegetol.....	23
Hall, Wm. R. & Son—Specialties.....	53	Wants, For Sale, etc.....	21
Hisey Mfg. Co.—Anesthetic.....	41	Willson, H. B.—Patents.....	20
Holloway, F. A.—Antiseptic Cement.....	52	Webster, Frank E.—Anesthetic.....	22
Hull, R. H.—Disk.....	23	Western Reserve Univ.—Coll. of Dentistry.....	53
Ideal Chemical Co.—Anesthetic.....	36		